Overview

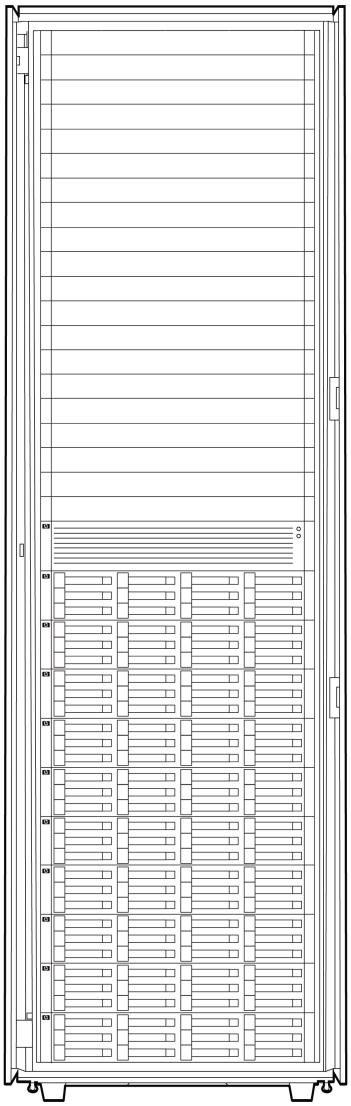
HP EVA P6000 Storage is an enterprise class virtual storage array family for midsized customers at an affordable price. With built in virtualization, the EVA P6000 is designed to improve capacity utilization and be easy to manage, which lowers the cost of ownership compared to traditional arrays. These arrays have high performance, scale easily, and are highly reliable and available. EVA P6000 is a trusted platform for enterprise application consolidation with solutions for Microsoft Exchange and SQL, Oracle, and SAP. It also offers integration with virtual server platforms from VMware, Microsoft and more, plus broad operating systems support.

The EVA P6000 family supports Serial Attached SCSI (SAS) disk drives with a wide range of Small Form Factor (SFF) SAS drives, Large Form Factor (LFF) SAS drives, or combinations of both, to better match customer storage capacity, performance, power, and availability needs. The EVA P6000 models are available with Fibre Channel host ports only, or Fibre Channel and 1Gb/s iSCSI host ports, or Fibre Channel and 10Gb/s iSCSI/FCoE host ports. EVA P6000 is also very energy efficient, with high efficiency power supplies for both the controllers and disk drive enclosures, with temperature sensing, self-adjusting variable speed fans.

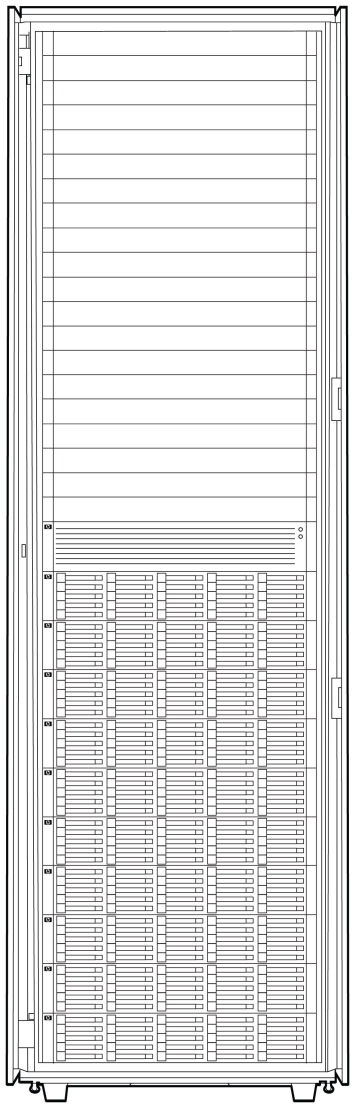
HP P6000 Command View now includes Thin Provisioning, which helps reduce the storage capacity required, to help reduce the number of disks needed, and thus reduce power and cooling costs. EVA P6000 also offers robust local and remote replication capabilities with HP P6000 Business Copy and HP P6000 Continuous Access software. P6000 Business Copy now also support Dynamic LUN and RAID migration, where in one step, the user can change the characteristics of an existing LUN, such as size, RAID type, disk type while the host I/O operation is active. This feature is useful, for example, to move data to more space efficient storage tiers or to move a heavily accessed LUN to a different disk group to improve performance.

EVA P6300/P6350 Combo Kits and Starter Kits are also available to help midsize customers with limited storage administration resources in affordable packages that are simple to order, simple to deploy, and simple to manage. The kits are available for both factory configuration and for field installation.

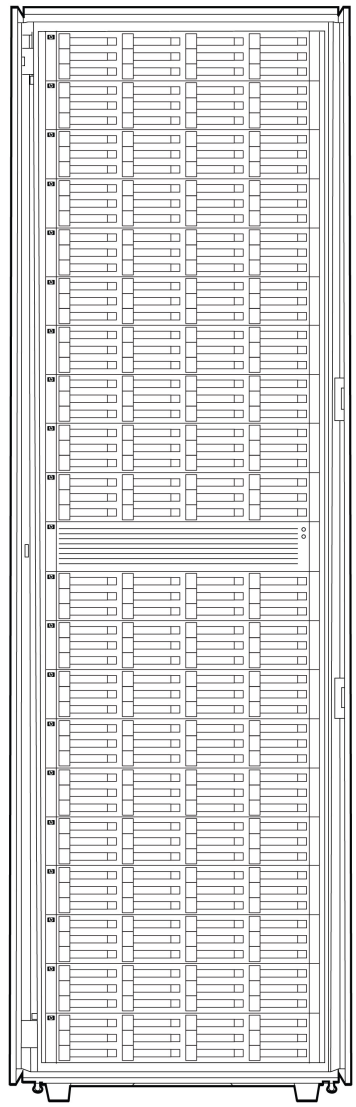
Overview



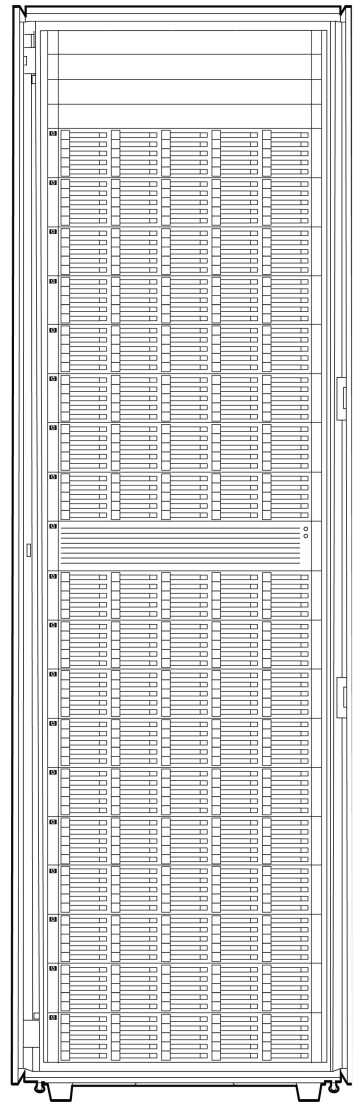
EVA P6350
2C10D
with 120 LFF drives



EVA P6350
2C10D
with 250 SFF drives



EVA P6550
2C20D
with 240 LFF drives



EVA P6550
2C18D
with 450 SFF drives

These drawings are informational only. The actual configuration may differ depending on the number of disk enclosures chosen and the components being racked with the EVA P6000.

The EVA P6300/P6350 can support up to 10 drive enclosures for a total of 120 LFF disks or 250 SFF disks. Combinations of LFF and SFF drive enclosures, up to 10 drive enclosures, can be supported

The EVA P6500/P6550 can support up to 20 LFF drive enclosures for a total of 240 LFF disks or 18 SFF drive enclosures for a total of 450 SFF disks. Combinations of LFF and SFF drive enclosures, up to 20 drive enclosures, and up to 450 disks, can be supported.

Overview

What's New

- A new 4.0 TB 7.2K 6Gb/s LFF MDL SAS drive

Product Highlights

	EVA P6300/P6350	EVA P6500/P6550
Controller Model	HSV340	HSV360
Virtual Controller Software (XCS)	XCS 11001000 (or later version)	XCS 11001000 (or later version)
Management Software	P6000 Command View v10.1 (or later version)	P6000 Command View v10.1 (or later version)
Application Environment	Oracle, SAP, Microsoft Exchange, SQL	Oracle, SAP, Microsoft Exchange, SQL
Local Data Replication - HP Business Copy EVA	Yes	Yes
Remote Data Replication - HP Continuous Access EVA	Yes	Yes
P6000 Command View, Server Based Management (SBM), management and configuration support	Up to 16 EVAs	Up to 16 EVAs
P6000 Command View, Array Based Management (ABM), management and configuration support	Per EVA	Per EVA
Thin Provisioning EVA	Yes	Yes
Application block and file storage	Yes	Yes
O/S Support	HP-UX HP OpenVMS Windows 2003 Windows 2008 Windows Server 2008 HyperV Windows Server 7 Sun Solaris Linux IBM AIX VMware Apple Mac OSX Citrix Xen	HP-UX HP OpenVMS Windows 2003 Windows 2008 Windows Server 2008 HyperV Windows Server 7 Sun Solaris Linux IBM AIX VMware Apple Mac OSX Citrix Xen
RAID supported	Vraid 0, Vraid 1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6, & Cross Vraid Snaps (SSDs do not support Vraid 0)	Vraid 0, Vraid 1, Vraid 0+1, Vraid 5, Vraid 0+5, Vraid 6, & Cross Vraid Snaps (SSDs do not support Vraid 0)
LUN size	Up to 32TB	Up to 32TB
Number of controllers	2	2
Cache (per controller pair)	4GB for P6300 8GB for P6350	8GB for P6500 16GB for P6550
Battery Back-up Cache	Yes, up to 96 hours	Yes, up to 96 hours
Host Connectivity	Fibre Channel, iSCSI, FCoE, and Direct Connect Fibre Channel	Fibre Channel, iSCSI, FCoE, and Direct Connect Fibre Channel
Number of Hosts Supported (Single Path/Dual Path)	512/256	512/256

Product Highlights

Host Ports (per controller pair)	8 FC host ports, or 4 FC host ports and 8 1Gb iSCSI host ports, or 4FC host ports and 4 10Gb iSCSI/FCoE host ports	8 FC host ports, or 4 FC host ports and 8 1Gb iSCSI host ports, or 4FC host ports and 4 10Gb iSCSI/FCoE host ports
Host Port Speed	8Gb/s FC 1Gb/s iSCSI 10Gb/s iSCSI/FCoE	8Gb/s FC 1Gb/s iSCSI 10Gb/s iSCSI/FCoE
Device Connectivity	Redundant SAS lanes from each controller to each SAS drive enclosure for redundant paths to dual drive lanes	Redundant SAS lanes from each controller to each SAS drive enclosure for redundant paths to dual drive lanes
Device SAS Lanes (per controller pair)	8	16
Device SAS Port Speed	6Gb/s	6Gb/s
Device Path Aggregate Bandwidth	24Gb/s	48Gb/s
Device shelves	1 to 10	2 to 18/20
Drives per SFF enclosure	25	25
Drives per LFF enclosure	12	12
Drive types (mixed in any enclosure, by physical SFF or LFF size)	Solid State Drives (SSDs), High Performance Enterprise 10K rpm and 15K rpm SAS drives and 7.2K rpm Mid-line SAS drives	Solid State Drives (SSDs), High Performance Enterprise 10K rpm and 15K rpm SAS drives and 7.2K rpm Mid-line SAS drives
Supported disks, minimum	6 SAS SSD or 8 SAS Enterprise 8 SAS Mid-line	6 SAS SSD or 8 SAS Enterprise 8 SAS Mid-line
Supported disks, maximum	120 LFF 250 SFF (25 SFF SSDs) Or combinations of LFF and SFF up to 10 enclosures	240 LFF 450 SFF (25 SFF SSDs) Or combinations of LFF and SFF up to 20 enclosures and/or up to 450 disks
Capacity	P6300 - 1.2 to 300TB (addressable limit) P6350 - 1.2 to 480TB	1.2 to 960TB
Drive capacities and speeds, Small Form Factor (SFF)	200GB SFF SAS SSD 400GB SFF SAS SSD 300GB 15K rpm SFF SAS 300GB 10K rpm SFF SAS 450GB 10K rpm SFF SAS 600GB 10K rpm SFF SAS 900GB 10K rpm SFF SAS 1TB 7.2K rpm mid-line SFF SAS	200GB SFF SAS SSD 400GB SFF SAS SSD 300GB 15K rpm SFF SAS 300GB 10K rpm SFF SAS 450GB 10K rpm SFF SAS 600GB 10K rpm SFF SAS 900GB 10K rpm SFF SAS 1TB 7.2K rpm mid-line SFF SAS
Drive capacities and speeds, Large Form Factor (LFF)	450GB 15K rpm LFF SAS 600GB 15K rpm LFF SAS 2TB 7.2K rpm mid-line LFF SAS 3TB 7.2K rpm mid-line LFF SAS 4TB 7.2K rpm mid-line LFF SAS	450GB 15K rpm LFF SAS 600GB 15K rpm LFF SAS 2TB 7.2K rpm mid-line LFF SAS 3TB 7.2K rpm mid-line LFF SAS 4TB 7.2K rpm mid-line LFF SAS
Read I/O Requests per Second (IOPs)	45,000	55,000
Maximum throughput (MB/s)*	1700	1700
Drive Interface (per controller)	Four 6Gb/s SAS lanes per controller in redundant paths to each dual ported drive	Eight 6Gb/s SAS lanes per controller in redundant paths to each dual ported drive
Variable Speed Redundant Blowers	Yes	Yes
Environmental Monitoring Unit	Monitors Power and Temperature	Monitors Power and Temperature

Product Highlights

Regulatory approvals	UL, CSA, TUV, FCC, CE MARK, CTICK, BSMI, VCCI	UL, CSA, TUV, FCC, CE MARK, CTICK, BSMI, VCCI
Fibre Channel Switches & Directors	Optical Switches and Directors: http://h18006.www1.hp.com/storage/saninfrastructure/switches.html	

* More EVA P6000 performance information is available at: www.hp.com/go/P6000, Resource Library.

EVA P6000 Additional Capabilities

- Easy to install and configure in just a few hours (for a factory configured unit) with the SmartStart configuration utility*
- Support for dual-ported 6Gb/s SFF and LFF SAS 10K and 15K rpm enterprise disk drives, dual-ported 6Gb/s SFF and LFF SAS Mid-line disk drives, and dual ported SFF Solid State Drives (SSD)
- Array management flexibility with optional deployments of:
  - Array Based Management with Command View/ABM
  - Server Based Management with Command View/SBM
- Support for Direct Attach connection to Windows, HP-UX, and Linux servers, without the need for SAN switches, with Command View/ABM
- SAN support for the native iSCSI/FCoE option and the MPX200 multi-protocol router with Windows and Linux, Apple Mac OS X, Microsoft Windows, Sun Solaris, VMware.
- Management of up to 1024 virtual disks (256 per HBA) for the EVA P6300/P6350 and up to 2048 virtual disks for the EVA P6500/P6550, with LUNs ranging in size from 1GB to 32TB per Virtual disk, in 1GB increments
- Dynamic Capacity Management support to expand (in 1GB increments) and shrink LUNs up to 32TB
  NOTE: Requires Host Operating System Support.
- Virtual disk data load leveling (non-disruptive background activity)
- Distributed sparing of disk capacity
- Redundant SAS connections from each controller to dual disk lanes
- Support for remote replication between EVA P6000s, EVA4400/6400/8400s, EVA4100/6100/8100s and EVA4000/6000/8000s
- Migration support via remote replications between EVA P6000s, EVA4400/6400/8400s, EVA4100/6100/8100s, EVA4000/6000/8000s and migration support only to older EVA3000/5000s
- Dual redundant controller operation for increased fault tolerance
- High availability with hot plug drives, power supplies, fans, and industry failover software
- Multiple Bus Failover Support using industry popular multiple path software
  NOTE: Requires native OS multi-pathing support.
- Battery-Back-Up for controller cache memory
- Asynchronous Disk Swap (hot swap)
- Clustered Server Support
- Mirrored Write-Back Cache Support
- Read-Ahead and Adaptive Read Caching Support
- Support for local replication between Vraid types using Vsnap or Snapclone within a disk group or using Snapclone across disk groups (and Cross Vraid Snapshot and Snapclone)
  NOTE: Vraid 0 should be used with care in select applications. It provides no data redundancy and can result in data loss with a drive failure. Vraid 0 is not supported on SSDs.
- Online XCS software upgrade capability
- Online drive firmware upgrade capability
- Multi-Vendor Platform Support
- Controller Password Protection for Configuration Control
- Selective Storage Presentation and SAN-based Data Zoning (through switches).
- Monitor and control health, EVA P6000 end-to-end SAN performance and monitoring, storage utilization and reporting for all key EVA P6000 and SAN infrastructure including servers, storage, HP MSA, HP EML E-series tape, HP ProLiant Storage Servers (NAS), HBAs, switches, applications and

monitor the entire backup from a single interface with HP Storage Essentials

*For more information on P6000 SmartStart see:
http://h18000.www1.hp.com/products/storageworks/evasmartstart/relatedinfo.html?jumpid=reg_R1002_USEN

EVA P6000 Product Packaging

EVA P6000 packaging consists of:

- a 2U FC dual HSV340 controller assembly for the EVA P6300/P6350;
- a 2U FC dual HSV360 controller for the EVA P6500/P6550;
- a 2U 12-LFF bay Model M6612 SAS drive enclosure; and
- a 2U 25-SFF bay Model M6625 SAS drive enclosure

EVA P6000 configurations allow a wide range of configuration options, including flexible factory rack-mounting options in either a standard 42U cabinet (based on HP Racks) or a choice of 42U extended and 36U and 22U height.
The EVA P6300/P6350 is available in pre-configured Combo Kit or Starter Kit configurations only?. For more information on these kits see the Configuration Section, Step 1.

Designed for No-Single-Point-of-Failure

The EVA P6000 family's redundant architecture and value added software is designed to eliminate single-points-of-failure from server to storage in clustered or single server configurations with multi-pathing.

HP P6000 SmartStart configuration utility

The EVA P6000 is easily installable in a few to several hours, depending on the complexity of the configuration, using HP P6000 SmartStart configuration utility. For Windows 2003 and 2008 application servers, SmartStart software installs HBA drivers, Multi-pathing I/O (MPIO) drivers, the Storage System Scripting Utility (SSSU) for Windows, P6000 Command View and optionally, installs P6000 Command View on a Windows Server 2003 management server and helps provision the storage. HP P6000 SmartStart is included as part of the P6000 Command View media kit.

Installation and Startup

The EVA P6300/P6350 are designed to be Customer Self Installable. The larger and more complex EVA P6500/P6550 have Installation and Startup (I&S) Services included in the purchase price.

For complex EVA P6300/P6350 environments, an optional Installation & Start-up service is available.

Below are descriptions of the I&S services available:

- For factory configured, factory racked EVA P6300/P6350 orders and when final installation of just the pre-configured EVA P6300/P6350 hardware at the customer site is required, purchase the Basic I&S service when needed.
- For factory configured, factory racked orders, without an existing P6000 Command View management server, purchase the P6000 Command View Installation and Startup Service. This service includes LUN design and implementation, HP Insight Remote Support software, and customer orientation training.
- For P6000 Continuous Access configurations, purchase the HP Data Replication Solution Service-Continuous Access.
- For Replication Solutions Manager, purchase the HP Data Replication Solution Service - Continuous Access EVA or Business Copy EVA.

Product Highlights

NOTE: Customers who have completed the necessary training or who have gained the necessary experience with these environments may decide to not purchase the recommended Installation and Startup services. However some installation and startup services are required.

HP requires the purchase of Installation & Startup services when using:

- Storage Essentials purchase the Storage Essentials Solution Service.
- Continuous Access, purchase the HP Data Replication Solution Service Continuous Access EVA.

NOTE: A comprehensive list of Installation & Start-up services can be found at: www.hp.com/services/storage

Remote Replication Solutions (Software and hardware options)

HP P6000 Continuous Access provides disaster tolerant replication across a Fibre Channel SAN. P6000 Continuous Access performs real-time replication between EVA P6000 of the current and earlier generations. P6000 Continuous Access provides the highest level of FC SAN data protection to customers in order to meet disaster tolerant business continuity implementation goals. Through the use of MAN/WAN Fibre Channel SAN extensions, P6000 Continuous Access provides 24x7 protections against disaster like scenarios, in campus, metro or continental networks. Thus, enabling business protection against unforeseen events. For additional information about P6000 Continuous Access visit: http://h18006.www1.hp.com/storage/software.html

HP Disaster Tolerant Solution for mySAP Business Suite on EVA offers a business continuance solution for SAP environments, where data integrity and value added functionality are high priorities. Best practices for implementing remote mirroring of an SAP database as part of an overall data protection strategy with SAP applications can be found at: http://h71028.www7.hp.com/erc/downloads/4aa1-5683Enw.pdf.

Local Replication Solutions (Software options)

HP P6000 Business Copy is a local replication application for the EVA P6000 family. It incorporates Virtually Capacity-free Snapshot (Vsnaps), standard snapshots and Snapclone capabilities. P6000 Business Copy creates point-in-time copies of storage volumes, called Business Continuance Volumes (BCVs) using the snapshot and cloning capabilities of the array firmware and provides multi-array local mirror management. This product is indispensable for critical data center operations such as non-disruptive backups, frequent snapshots of high value databases, and data mining. The bottom line benefits include improved disk capacity utilization and increased business continuity, data availability, and productivity savings. Additional features include licensing based on replicated (not total raw) capacity and a new improved management interface.

Replication Management

EVA P6000 local and remote replication is managed with HP Replication Solutions Manager, a graphical user interface and scripting environment, that greatly simplifies storage management by creating, running, and managing storage replication jobs using controller based snapshots, clones and remote mirroring.

With HP Replication Solutions Manager users easily can manage both remote and local replication across the full EVA P6000 product family. By virtually removing the complexity associated with both small and large replication environments, point-in-time copies and remote replication are managed and configured with just a few mouse clicks. To assist the user, Information on the replication environment is presented in a variety of views, including an interactive topology manager that allows each user to select their viewing preference. In addition, HP Replication Solutions Manager provides a scripting interface for additional flexibility. HP Replication Solutions Manager is included as part of the P6000 Command View media kit.

Product Highlights

Application Integration with Oracle

As an alternative to HP P6000 Business Copy, the user can simply replicate an Oracle database using HP Replication Solutions Manager (RSM). RSM provides a graphical interface to view the components of the database to be replicated, and allow selection of a specified database. The replication manager will automatically suspend the Oracle application, and take a point in time copy (local or remote) of all associated array virtual disks. The replication manager will provide the option to restart the original Oracle database after the replicas have been initiated on the array. The user will be able to utilize the replication manager to present the replica to another host.

Thin Provisioning

HP P6000 Thin Provisioning provides the ability to create a vdisk such that the operating system sees more capacity available than is physically allocated by the array. As the OS writes data to the vdisk, the firmware will automatically allocate more space up to the size of the vdisk.

The following are some of the benefits of thin provisioning. It allows customers to:

- Purchase only the storage capacity and performance actually needed today
- Take advantage of ongoing storage price reductions by delaying purchases until capacity is needed
- Save power and cooling costs immediately
- Reduce stress by reducing the need to anticipate and justify expenses for resources that might never be needed
- Increase array capacity online, without any impact to the server/application
- Increase storage utilization and return on investment immediately (Stop paying for storage that is never used)
- Use virtual storage with your virtual machines
- Never extend a File System (FS) again - make the Vdisk larger than needed the first time
- Easily shrinking the thin provisioned Vdisk

Capacity Management

HP EVA Dynamic Capacity Management Software is a comprehensive software solution that automates storage provisioning and improves capacity utilization on the HP Enterprise Virtual Array (EVA) family. Designed for the enterprise market, EVA Dynamic Capacity Management Software uses advanced automation to automatically "right-size" the file system and storage volumes to ensure the highest levels of capacity utilization are achieved while reducing ongoing storage administration needs. For more information about DCM, please see the following:
http://h18000.www1.hp.com/products/storage/software/eva_dcm/index.html

Product Highlights

Application Solutions

EVA P6000 provides outstanding solutions for customers running Oracle, Exchange, SAP environments and those customers who are deploying virtual server technologies like VMware. Here are descriptions of two such solutions:

- Oracle E-Business Suite (EBS)

One of the greatest concerns for customers is database performance. With larger LUNs and Solid State Drives (SSD) available with the EVA P6000, customers get industry leading super fast performance along with the scalability, availability, and ease of management capabilities they have come to expect from HP Storage Solutions. Everything a customer depends on when managing their most critical business asset - business data.

NOTE: Maximum array performance using SSDs can be achieved with just 8 SSDs. Adding more SSDs may not increase performance. However, using up to 25 SSDs can increase the capacity of applications that can fit into the SSD storage space, allowing the SSD performance to be useful to larger application situations.

Designed to support the global economy (as well as mid-market companies with complex requirements), Oracle® E-Business Suite (EBS) on the HP BladeSystem server and the HP EVAs help users think globally to make better decisions; work globally to be more competitive; and manage globally to lower costs, enhance security and increase performance. This right-sized, affordable business technology is built on a unified architecture with a single Oracle Database-providing a comprehensive, integrated set of business management and planning applications that allow organizations to manage their end-to end operations.

- Microsoft Exchange 2010

Whether your company is large, small, or mid-sized, improving communication is critical. E-mail is the leading tool for business communication, and the productivity gains from workplace collaboration can be enormous. But managing all that information can be a challenge. A unified messaging solution that runs on HP EVA P6000 along with HP ProLiant servers and Microsoft® Exchange Server 2010 enables your employees to effectively share information across your organization, with customers, suppliers, and partners.

For additional information on application solutions for the EVA P6000, please go to: www.hp.com/go/p6000.

EVA P6000 with HP Storage Essentials Storage Resource Management Software Suite

HP Storage Essentials Enterprise Suite and HP Storage Essentials Standard Edition SRM Software integrate with HP Systems Insight Manager to provide end-to-end advanced server and storage management capabilities. HP Storage Essentials SRM Suite software features a base management console and an expanding portfolio of value-add plug-in software to assist in managing EVA in heterogeneous SANs across the enterprise.

HP Storage Essentials Suite delivers integrated heterogeneous and multivendor functionality for network (Arrays, DAS, SAN, NAS, HBAs, switches) management, storage resource management, reporting, business application and backup monitoring, capacity metering, provisioning and application infrastructure monitoring.

http://h18006.www1.hp.com/products/storage/software/e-suite/index.html

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Product Highlights

HP Standard Edition SRM Software and EVA P6000	HP Storage Essentials Standard Edition Storage Resource Management Software and Systems Insight Manager with P6000 Command View / SBM software provides a total solution that allows midsize businesses with limited IT staff to see the big picture (storage-servers-infrastructure) thereby reducing SAN complexity by not having to depend on Excel spreadsheets or whiteboards to track and manage SAN storage and infrastructure. It supports Windows and Linux servers with small to medium HP storage based SANs including HP EVA P6000, HP P2000, HP NAS, HP EML Tape, HBAs and fabric devices. HP Standard Edition SRM Software unified server and storage tool-set automates complex and manual storage process and tasks with auto discovery, visualization and topology mapping for quick device identification, integrated NAS and SAN management, business application monitoring including Oracle, Microsoft SQL, Sybase, InterSystems Caché, Microsoft Exchange Server and SAP Adaptive Computing Controller (ACC) environments path dependency identification, and end-to-end EVA SAN performance monitoring and analysis. For more information on HP Storage Essentials SRM Standard Edition Software visit: http://h18006.www1.hp.com/products/storage/software/std-suite/index.html
HP Storage Essentials SRM Performance Pack Software and EVA P6000 (end-to end EVA P6000 SAN Performance Management)	HP Storage Essentials SRM Performance Pack Software combined with Storage Essentials SRM Enterprise Edition Software monitors performance along the complete path of business applications through underlying storage area networks (SAN) components, including host server, host bus adapter (HBA), fabric switch and EVA P6000. A unified and simplified interface helps administrators increase efficiency, troubleshoot performance bottlenecks faster, and quickly visualize the big performance picture of their EVA P6000 storage, hosts and SAN infrastructure with real-time monitoring, historical trend analysis and trend extrapolation. The SRM Performance Pack Software can be ordered separately on a per EVA P6000 basis for existing Storage Essentials SRM Enterprise Edition customers, and for Storage Essentials SRM Standard Edition customers the SRM Standard Edition LTU includes licensing to monitor up to 3 EVA P6000s. For more information on HP Storage Essentials SRM Standard Edition Software visit: http://h18006.www1.hp.com/products/storage/software/std-suite/index.html
EVA P6000 with HP Systems Insight Manager Software	HP SIM, HP Systems Insight Manager, is the foundation for HP's unified server-storage strategy - it is a management application and it is derived from the heritage of Compaq Insight Manager, HP Toptools, and HP Servicecontrol. HP SIM runs on HP Windows, Linux, and HP-UX and provides discovery and identification, fault management, security administration, asset reporting, and centralized configuration management across heterogeneous servers, storage and infrastructure. HP SIM is easily extensible, integrating other HP management products and value-add plug-ins such as the ProLiant Essentials, Integrity Essentials, and Server Essentials. HP SIM relies on industry standards like SMI-S, SNMP, SSH, WBEM, and WMI to detect and report heterogeneous device attributes. HP SIM may also be configured to launch array specific applications for configuration, reporting and replication. For more information on HP Systems Insight Manager see: http://h18013.www1.hp.com/products/servers/management/hpsim/index.html?jumpid=go/hpsim.
HP Virtual Library System (VLS) **EVA Gateway**	The VLS EVA Gateway supports the EVA 4x00/6x00/8x00 and the EVA P6000 series. See the VLS QS at: www.hp.com/go/vls for further information.

Product Highlights

HP Insight Control Storage Module for vCenter	HP Insight Control Storage Module for vCenter and HP Insight Control for vCenter Server are a pair of HP-developed plug-in modules that enable VMware administrators to monitor and manage all of their HP server, networks, and storage from within the vCenter management console. For more information, see: http://h18000.www1.hp.com/products/servers/management/integration.html
Single-pathing (Single HBA per host)	Single-pathing (or single HBA per host) support is provided for all supported operating systems (but may be version dependent). Use of single-pathing, which does not offer a redundant path option, should be used with care. Failure of the single HBA will result in loss of access for that host until the HBA is replaced.
Enclosure Capacity	EVA P6000s provide high density disk storage solutions. EVA P6000 (HSV340 or HSV360) dual controllers occupy 2U of space. The 12-LFF bay M6612 SAS disk enclosure and the 25-SFF bay M6625 SAS disk enclosures each occupy 2U of space. The EVA P6300/P6350 supports up to 120 LFF SAS disks in 12U of rack space or up to 250 SFF SAS disks in 12U of rack space. The EVA P6500/P6550 supports up to 240 LFF SAS disks in 42U of rack space or up to 450 SFF SAS disks in 38U of rack space.
Solid State Drive Support	EVA P6000s support 200GB and 400GB dual ported SAS enterprise solid state drives (SSDs). The EVA arrays support mixed drive types (SSDs, high performance, and mid-line SAS) within an enclosure. The SSDs require their own disk group. The minimum number of SSDs supported, when used, is 6 and the maximum is 25 per array. **NOTE:** SSDs support Vraid 1, Vraid 5 and Vraid 6, but do not support Vraid 0. Business Copy features are also supported. Continuous Access is not supported.
15K rpm Drive Support	The EVA P6000s support 15K rpm dual-ported 6Gb/s SAS disk drives. This includes the 300GB 15K SFF and the 300/450/600GB 15K LFF drives. The EVA P6000s support single or mixed drive capacities and types (high performance and Mid-line SAS) within an enclosure. HP recommends using the same drive type and the same capacity within a disk group because virtualization allocates space proportionate to the highest capacity drive within the group. A minimum of eight high performance SAS drives are required in a configuration using high performance drives.
10K rpm Drive Support	EVA P6000 also supports 10K rpm dual-ported 6Gb/s SAS disk drives. This includes the 300GB/450GB/600GB/900GB 10K LFF drives. The EVA P6000s support single or mixed drive capacities and types (high performance and Mid-line) within an enclosure. HP recommends using the same drive type and the same capacity within a disk group because virtualization allocates space proportionate to the highest capacity drive within the group. A minimum of eight high performance SAS drives are required in a configuration using high performance drives. **NOTE:** 10K rpm disk drives draw less power than their 15K rpm counterparts. So these disk drives are good choices for customers looking to cut their power requirements and who do not need the performance of 15K rpm disk drives.

Product Highlights

7.2K Mid-line Drive Support

The EVA P6000 also supports 7.2K dual ported 6Gb/s mid-line SAS drives. This the 1TB 7.2K SFF 6Gb/s mid-line SAS, and the 2/3TB 7.2K LFF 6Gb/s mid-line SAS drives. EVA P6000 supports a full configuration of mid-line disk drives and can be configured with any combination of mid-line and high performance disk drives; total raw capacity varies based upon the redundancy (Vraid) selected. A minimum of eight mid-line SAS drives are required in a configuration using mid-line SAS drives.

Mid-line SAS drives are designed for lower duty cycle applications such as near on-line data replication for back-up. These drives should not be used as a replacement for EVA P6000 high performance, standard duty cycle, SAS drives. Doing so could shorten the life of the drive.

Fibre Channel Technology

EVA P6000 models are enabled for 8Gb/s FC Switched Fabric and are compatible with 8Gb/s, 4Gb/s, or 2Gb/s FC Switched Fabric SANs. They can co-exist in the same FC SAN with EVA3000/5000 or EVA4x00/6x00/8x00 FC storage solutions and many other SAN devices. Direct Connection from EVA P6000 to servers is also supported.

Direct Connection from an EVA to a Virtual Connect FC module is not supported. The EVA must connect to a FC switch, which can then be connected to the Virtual Connect FC module.

EVA P6000 takes advantage of the benefits of Fibre Channel (FC) in distance, performance and connectivity. The use of optical Fibre cabling allows distances between connected segments of a SAN to be up to 500 meters @ 2Gb/s using short wave multi-mode and OM3 cables, up to 384 meters @ 4Gb/s and OM3 cables, and up to 150 meters @ 8Gb/s and OM3 cables, and up to 10 kilometers (6.21 miles) @ 8Gb/s or 4Gb/s when using long wave transceivers. Storage Area Networks (SANs) can be constructed using FC switches/directors for fabric connectivity. HP SAN H-Series, B-series and C-series switches and directors provide exceptional connectivity while increasing the effective bandwidth of the network. Supported SAN features include Zoning for communication isolation and Inter-Switch Links (hops) up to 10 km.

For more information on specific support specifications see the following SAN Infrastructure URL:
http://h18006.www1.hp.com/storage/saninfrastructure/switches.html

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Transfer Speeds

The EVA P6000s have 8Gb/s FC host ports per HSV340 or HSV360 controller pair. The models have:

- FC only, have 8 FC ports, four for each controller.
- FC and 1Gb/s iSCSI (1GbE), have four FC ports, two for each controller, and eight 1Gb/s iSCSI ports, four for each controller.
- FC and 10Gb/s iSCSI/FCoE (10GbE) have four FC ports, two for each controller, and four 10Gb/s iSCSI/FCoE ports, two per controller.

The EVA P6000 controllers are compatible with 8Gb/s, 4Gb/s and 2Gb/s FC switches, HBAs, servers and other storage solutions.

Each EVA P6000 controller pair interfaces with the M6612 and M6625 drive enclosures via 6Gb/s SAS connections. With two SAS device connectors per controller and dual SAS I/O modules per drive enclosure, each controller has two connections to each SAS drive A and B port. So each controller has two redundant paths to each SAS enclosure I/O module and two redundant paths to each drive in each enclosure.

Product Highlights

High Availability/ Fault Tolerance/ Hot pluggable support

All EVA P6000 models are configured with dual HSV controllers that operate in a redundant mode. Each controller has either four redundant FC paths; or two redundant FC paths and four redundant 1Gb/s iSCSI paths; or two redundant FC paths and two redundant 10Gb/s iSCSI/FCoE paths. In the event of a path failure, the alternate paths to the controller can be utilized with the use of multi-path software in the Operating System.

Each EVA P6300/P6350 controller has two SAS connectors, each carrying two SAS signals. With the HP P6300/P6350, one SAS cable, carrying two redundant SAS signals, connects to one SAS I/O module on a drive enclosure; and the second SAS cable, carrying two more redundant SAS signals, connects to the other SAS I/O module of a drive enclosure. For the EVA P6300/P6350, up to ten drive enclosures can be connected in a SAS daisy-chain arrangement with a controller pair. At the end of the daisy chains, each chain is then connected to the second EVA P6300/P6350 controller.

Each EVA P6500/P6550 controller has two SAS connectors, each carrying four SAS signals. A Y-SAS cable is used to split the signals into two branches, each with two SAS signals. One branch of the Y-cable, carrying two redundant SAS signals, connects to one SAS I/O module on a drive enclosure; the second branch of the Y-cable goes to a SAS I/O module on a second drive enclosure. Similarly, a second Y-SAS cable, carrying two more redundant SAS signals per branch, connects to the other SAS I/O module of each of the two drive enclosures. For the EVA P6500/P6550, up to twenty LFF SAS drive enclosures or eighteen SFF SAS drive enclosures or combinations of LFF and SFF SAS enclosures (up to 20 enclosures as long as a 450 drive count is not exceeded) can be connected in a SAS daisy-chain arrangement with a controller pair. At the end of the daisy chains, each chain is then connected to the second EVA P6500/P6550 controller, again using Y-SAS cables.

Within the SAS drive enclosures, one I/O module connects to one port of each SAS drive in the enclosure; and the other I/O module connects to the second port of each SAS drive.
The HSV340 and HSV360 controllers also have dual redundant hot plug power supplies and dual redundant hot plug blowers. Each controller has hot plug cache batteries to maintain cache contents for up to 96 hours in case of a total power failure.

The M6612 and M6625 SAS drive enclosures have dual redundant hot plug SAS I/O modules that allow the controllers to distribute I/Os between the two modules and provides redundant paths should either I/O module become unavailable. The enclosure also has dual redundant hot plug power supplies and dual hot plug blowers. Environmental Monitoring Unit (EMU) functionality is built into the I/O modules in the enclosures and monitors and reports the condition of the power supplies and fans.

The SAS SSD, enterprise SAS, and mid-line SAS disk drives have dual SAS lanes which can be redundantly accessed by each controller. The drives are hot plug. The drives can be configured, using redundant Vraid 1, Vraid 5, or Vraid 6 protection so that a drive failure will not cause loss of data. Optional virtual sparing can be configured so that a drive failure will trigger an automatic rebuild of the Vraid 1, Vraid 5, or Vraid 6 protection using the virtual spare drive(s).
NOTE: SSDs do not support Vraid 0.

All EVAs have dual redundant power distribution. Two independent power cords distribute power through two Power Distribution Units (PDUs) to each side of the EVA cabinets, to each power supply of the controllers and to each power supply of the drive enclosures. Each cabinet power cord can be connected to independent power sources. For maximum availability, a customer should provide redundant power from independent power circuit breakers, independent power lines from the power company and even independent power companies. Battery -backed UPS (Uninterruptible Power Supplies) or independent power generators can also be deployed.

Product Highlights

EVA Manageability

HP P6000 Command View provides the capability to manage EVA P6000 family in a SAN or direct connect Fibre Channel host attach configuration. HP P6000 Command View / SBM software runs on a variety of server configurations using Windows Server 2003, Windows Server 2008 Enterprise Edition or Standard Edition. See the Command View QS at: www.hp.com/go/commandview for a list of servers that support Command View.

The powerful P6000 Command View/SBM provides an easy mechanism to manage up to 16 EVA units in a SAN configuration. Industry leading security enhancements in Command View now allows administrators to take advantage of Windows domains and local groups. Command View integrates with Windows Active Directory to authorize and authenticate users. In addition, all user actions and events that change system state are logged. Administrators can now use the audit logging capabilities to see who did what and when. The P6000 Command View media kits and license are required with all EVA P6000 models. HP P6000 Command View requires a License to use (LTU) for each array.

P6000 Command View / ABM is also available for EVA P6000. It runs on the EVA P6000's ABM module and does not require a management server. It manages only the EVA P6000 that it is running on. It supports Command View functions as well as Business Copy functions, but not Continuous Access functions.

Performance

Fibre Channel host connections provide up to 800MB/s bandwidth for each 8Gb/s path.

Dual mirrored port write caching capability between the controller pair, with battery backed cache, maintains optimal availability while assuring data integrity in the event of a failure.

Each HSV340 or HSV360 controller has four Fibre Channel host ports (eight FC ports in a redundant pair of controllers), or two Fibre Channel host ports and four 1Gb/s iSCSI ports (four FC ports and eight iSCSI ports), or two Fibre Channel host ports and eight 10Gb/s iSCSI/FCoE ports (four FC ports and four iSCSI/FCoE ports) in a redundant pair of controllers, assuring the availability of bandwidth for the most demanding applications.

In addition, 4GB of cache per HSV340 controller pair and 8GB of cache per HSV360 controller pair helps ensure high performance.

Servers Supported - Single and Clustered

HP servers (HP-UX, ProLiant, ProLiant Storage Servers, AlphaServers)
X86 servers
Dell servers
Sun servers
IBM servers
Apple XApple Servers (PowerPC and Intel)

Product Highlights

EVA P6000 Required Software

EVA P6000s ship with XCS 11001000 factory installed on new EVA P6000 models. The base XCS license for EVA P6000 is contained in the hardware shipment. XCS 11001000 also supports the EVA4400/6400/8400 arrays. XCS 11001000 controller media download is available from HP.com. These downloads are available for upgrades of existing EVA P6000 installations or for EVA4400/6400/8400. The EVA P6000 Release Notes and Upgrading Product software Guide are also available from the same location.

NOTE: Review the Release Notes and Upgrading Product Software documentation and compatibility requirements of all installed Array Integrated Software completely before upgrading.

HP P6000 Command View is required software for EVA P6000. HP P6000 Command View requires a License to use (LTU) for each array.

Install and configure P6000 Command View / SBM and EVA P6000 with HP P6000 SmartStart Storage. Order this media kit when ordering EVA P6000.

EVA P6000 Software Selector

The following matrix will assist in identifying some of the complimentary HP software products that can be used along with the EVA P6000 to support various business applications. Please see your Sales Representative, or go to: http://www.hp.com for more information on these valuable HP software products.

Just click on the product name and you will be linked to the product specification URL.

HP Storage Management Pack for Microsoft System Center

The HP Management Pack for Systems Center Operations Manager provides seamless integration with Microsoft Systems Center Operations Manager and now System Center Essentials by integrating predefined discovery and state monitoring policies, event processing rules and tasks, and diagram and topology views for the storage system.

For more information:

http://h18000.www1.hp.com/products/quickspecs/14249_na/14249_na.html

HP Storage Management Pack can be downloaded free from the following website:
https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=SCOM

	Device and Configuration Management	Backup Solutions	Business Continuity/ Local Mirroring	Disaster Recovery/ Remote Mirroring	Storage Resource Management	Unified Server and Storage Management	Application Integration
HP P6000 Command View with Thin Provisioning	X (Required)						
HP P6000 Performance Advisor Software	X Performance monitoring and troubleshooting						
HP P6000 SmartStart	X						

Product Highlights

HP P6000 Business Copy		X					X
HP P6000 Continuous Access				X			
P6000 Dynamic Capacity Manager	X						
HP Storage Essentials Suite (Heterogeneous, multivendor)	X End to end provisioning (hosts, infrastructure, storage)	X End to end backup monitoring/ reporting			X Discovery, topology, monitoring, events, applications, NAS/SAN, File monitoring, reporting, Performance, monitor host clusters		X monitor applications and associated storage/infrastructure (Oracle, Microsoft Exchange Server, Sybase, Microsoft SQL, InterSystems Cache' database and SAP ACC)
HP Storage Essentials Standard Edition SRM Software (Small to medium HP Storage-based SANs)	Discovery, topology	X Backup monitoring/ reporting			X monitoring, events, applications, NAS/SAN, File monitoring, reporting, EVA Performance, monitor host clusters	X	X (Oracle, Exchange, Sybase, MS SQL)
HP Data Protector		X	X				X
HP Systems Insight Manager	In-context launch of CV EVA, SAN discovery, monitoring, asset, config., security					X (Included with EVA)	

EVA and Value-added Software Compatibility

HP EVA P6000	XCS Software	HP P6000 Command View*	HP P6000 Continuous Access EVA**	HP Business Copy EVA**	HP Replication Solution Manager (RSM)***
	EVA P6000 XCS 11001000 (or later)	P6000 Command View, v10.1 (or later version) with Performance Advisor Software	Continuous Access EVA v10.0 (or later version)	Business Copy EVA v10.0(or later version)	Replication Solution Manager v5.4 (or later version)

*HP P6000 Command View is required software. HP P6000 Command View requires an Unlimited License to use (LTU) for each array. If the EVA does not have the proper licensed capacity it will be in violation of the End User License Agreement (EULA).
HP P6000 Performance Advisor Software requires an optional software License to use (LTU).
**HP P6000 Continuous Access and HP P6000 Business Copy requires an Unlimited License to use (LTU) for each array. If the EVA does not have the proper licensed capacity it will be in violation of the End User License Agreement (EULA).
***HP Replication Solutions Manager Software provides a powerfully simple graphical user interface (GUI) to create, manage and configure local and remote replication on the entire EVA family. The RSM Software provides a centralized management interface that integrates with HP Business Copy EVA Software and HP Continuous Access EVA Software for local and remote replication, resulting in a unique, cost effective disaster recovery solution.

Operating Systems, Cluster and High Availability Compatibility

Operating System	Versions Supported		Cluster Server or High Availability Software	HA Versions Supported	Failover Software
Microsoft Windows 2003/32-bit	All Editions - See SPOCK for details	R2, SP2 R2, SP2	Microsoft Cluster Server (MSCS) (2003) Windows Failover Clusters (MFCS)(2008) Veritas Storage Foundation & HA Solutions for Windows	Windows Server 2003 Windows Server 2008 See SPOCK for details	Full featured MPIO, available from HP (2003, 2008) and Microsoft DSM from Microsoft (2008) See SPOCK for details
Microsoft Windows 2003/x64	All Editions - See SPOCK for details	R2, SP2 R2, SP2			
Microsoft Windows 2003/IA64	All Editions - See SPOCK for details	R2, SP2 R2, SP2			
Microsoft Windows 2008 32-bit, x64	All Editions - See SPOCK for details	SP1, SP2, R2			
Microsoft Windows 2008 IA64	All Editions - See SPOCK for details	SP1, SP2, R2			
Microsoft Windows 2012 x64	All Editions - See SPOCK for details		Windows Failover Clusters (MFCS)(2012)	Windows Server 2012 See SPOCK for details	Full featured MPIO, available from HP (2012) and Microsoft DSM from Microsoft (2012) See SPOCK for details
HP-UX	11i v2 (Integrity)		HP ServiceGuard	11.16	HP-UX 11i v3 has OS

Product Highlights

	11i v3 (Integrity)	A11.19 (for 11i v2) HP ServiceGuard A11.20 (for 11i v3) Veritas Storage Foundation & HA Solutions	11.17 11.18 11.19	native multi-path, pvlinks native in HP-UX, and Veritas DMP
Linux	Red Hat EL Advanced Server 5.7, 5.8, 6.1, 6.2 (IA32, IA64 & x86_64) SUSE/SLES10 (IA32, IA64 & x64) SP3 (includes Open Enterprise Server Linux) SUSE/SLES11 SP2(IA32, IA64 & x64)- (Includes Open Enterprise Server Linux, Oracle Enterprise Linux V5, 6)	RHEL Clustering SLES HA Extensions VERITAS Storage Foundation & HA Solutions	See SPOCK for versions	Emulex MultiPulse available from HP Native Device Mapper and Documentation
Apple Mac OS X	10.6 10.7	N/A	N/A	ATTO FC HBA driver
HP OpenVMS	Alpha: 8.3, 8.4 Integrity: 8.3-1H1, 8.4	HP OpenVMS Clusters	8.3 (Alpha only) 8.3-1H1 8.4	Native in OS
Sun Solaris	9 (SPARC) 10, 11 (SPARC & x86)	SunCluster VERITAS Storage Foundation & HA Solutions	3.2 See SPOCK for versions	MPxIO for Solaris, Native in OS Veritas DMP
IBM AIX	6.1 7.1	HACMP 5.5 PowerHA 6.1 VERITAS Storage Foundation & HA Solutions	Native in OS See SPOCK for versions	MPIO for IBM AIX, Native in OS Veritas DMP
VMware	ESX Server 4.0, 4.1 ESXi 5.0	Native HA	See SPOCK for versions	See SPOCK for versions

NOTE: For the latest support information on hardware, operating systems and high availability, failover and cluster software, check HP's Single Point of Connectivity Knowledge (SPOCK).

Product Highlights

Racking Guidelines and Power Distribution

Power Distribution Units (PDUs) are configured according to the voltage used in the country when the solution is ordered. These PDUs provide redundant power. They are located in the bottom and back of the cabinet, taking 1U of rack space.

For EVA P6000, a variety of HP Rack offerings and integration options are available. EVA P6000 configurator tools utilize a 42U HP Rack as the standard recommendation and will provide a 200 - 240V PDU and country specific power cords. However, EVA P6000 configurations can be customized to meet a wide variety of customer needs. The height, width (including the 800mm wide rack) and types of rack and PDUs can be modified based upon the specific customer need. If other devices, such as servers, switches or back-up devices are to be installed with the array, this can be specified and the cabinets and PDUs can be modified to support the configuration. EVA P6000 also supports 22U and 36U racks. The 47U rack is also supported, but not factory configured, because of the cabinet height, which creates shipping difficulties. It must be assembled on site.

For more information on the HP rack offerings, please see the following URL:
http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html

Other PDUs, besides the 200 - 240 V single-phase default PDU, are also supported. This includes 100 - 127 volt single-phase, 200 - 240 volt three-phase, and 380 - 415 volt three-phase PDUs. Monitored PDUs are also supported.

NOTE: When 1200mm deep cabinets are used, the power cords that come with the EVA P6000 controllers and drive enclosures are not long enough to reach to the power strip locations in the deep cabinets. One pair of longer power cords, one 142257-006 (black) and one AF573A (gray), is needed for each EVA P6000 controller or drive enclosure, either factory installed or field installed.

For more information on PDU support, please see the following URL:
http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/pdu.html

NOTE: When adding additional devices to existing racks ensure that the installed PDUs will support the new power requirements.

Total Cost of Ownership

The unique virtual architecture allows up to twice the normal effective capacity utilization of traditionally architected storage offerings. And with Virtually Capacity-Free Snapshot (Vsnap), significant duplicate capacity requirements can be eliminated resulting in fewer/smaller storage acquisitions.

EVA P6000 is a high density disk storage solution. Additionally, the unique virtual architecture allows up to twice the normal effective capacity utilization of traditionally architected storage offerings. And with the virtually Capacity-Free Snapshot (Vsnap), mid-line SAS disk drives and the ability to change Vraid types, significant amount of duplicate capacity requirements can be eliminated, resulting in fewer/smaller storage acquisitions.

Warranty and Services Included with the Product

EVA P6000 comes with HP's 3-year Global Limited Warranty and Technical Support, which includes 3 years 9x5 hardware support, with next business day (NBD) response. HP's warranty and support features:

- Online Business Support Center and IT Resource Center
- Remote Support
- Technical Phone Support
- Customer Self Repair (see list below)
- Software Limited Warranty
- On-site Warranty Service

EVA P6000 SAS, midline SAS and SAS SSD drives are 3 years, parts only.

Online Support
HP online support capabilities include a variety of self-help tools, troubleshooting assistance, and access to the patch database, firmware/software update packages and documentation. Register with the HP Business Support Center and the IT Resource Center to receive product specific and proactive notifications for EVA P6000. For more information go to: www.hp.com/support or: www.itrc.hp.com.

Remote Support
HP designed EVA P6000 with support capability to facilitate remote monitoring and email notification of array errors/events. To take full advantage of HP's remote support solutions and maximize the service delivery experience, these features must be enabled at time of installation. Additional fault monitoring software is included in the EVA P6000 software media kit.

Technical Phone Support
24x7 telephone technical support is available to assist with Hardware warranty related troubleshooting and issue resolution. Call HP warranty support: 1-800-474-6836. Qualified technical resources will be your first point of contact to assist with your service request.

Customer Self Repair (customer installed replacement parts)
HP designed EVA P6000 to enable the highest degree of Customer Self Repair and parts replacements. This feature enables maximum support flexibility, while minimizing unit down time. Customer Self Repair parts come with step by step instructions with additional assistance available online or by phone.

Required Customer Self-Repair (Replacement) Parts List:

- Hard disk drives with drive firmware code load.
- Controller enclosure power supply.
- Controller enclosure fan.
- Controller cache battery.
- Controller management module
- Disk enclosure power supply.
- Disk enclosure fan.
- Bezels.

Optional Customer Self-Repair Parts List:

- Controller module.
- Controller cache memory (DIMM).
- Internal enclosure boards and cables

- Fiber channel Transceivers.
- Fiber channel transceivers cables.

Part replacement videos can be viewed at: http://hp.com/go/sml. For EVA P6000, select Storage, then EVA Disk Arrays, then HP P6300/P6500 Enterprise Virtual Array, then the particular resource needed.

Software Warranty
If the removable HP Software media on which HP distributes the software proves to be defective in materials or workmanship within 90-days of purchase, return the media to HP for replacement.

On-site Warranty Service
EVA P6000 comes with 3 year on-site warranty support, for those service events not remedied either remotely or through use of customer self-repair replaceable parts. On-site service is made available at HP's discretion and scheduled during standard office hours.

For more information about HP's Global Limited Warranty and Technical Support, visit:
http://h18006.www1.hp.com/products/storageworks/warranty.html

For more information about HP's Global Limited Warranty and Technical Support, visit:
www.hp.com/storage/warranty

HP warrants the HP Racks according to the standard rack product warranty. Please refer to product specification for further details:
http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html

Service and Support

Services to accelerate time to results

HP Storage Services bring you a rich portfolio of consulting and support services designed to add value to our core storage products and solutions. We have the know-how and experience to put storage technology to work for you. We work closely with you as your strategic partner, leveraging our full services portfolio to make sure that everything works to optimize your enterprise. Choose from services aligned to our storage product offerings and lifecycle. From mission-critical onsite services to innovative web-based remote support, you choose the precise level of attention and support your business demands.

Discover, plan, and design

Choose from a rich portfolio of services to make the most of HP EVA P6000 Storage, so you can efficiently and affordably consolidate, manage, and extract value from unstructured data.

HP Services can help you discover needs and create a plan for simplifying the environment, reducing risk, and maximizing your storage investments

HP Backup Recovery Efficiency Analysis - Assessment of how efficiently backup components are being used as the amount of data to be backed up continues to grow exponentially via analysis intelligence and a snapshot of your current backup environment. http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8490ENW.pdf

HP Backup Recovery Impact Analysis - Focus placed on service requirements and design as the key to success for gaining a clear understanding of the role of increasingly diverse data protection strategies. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-1175ENW.pdf

HP Backup Recovery Modernization - Initial discovery, interviews, reference architecture design, proposal content development, vendor grading, and final recommendations carried out so as to require minimal resources and locations on your part. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-1199ENW.pdf

HP Storage Cloud Design Service - Build a scalable, low-cost enterprise storage environment with inherent cloud benefits to meet big data needs.

Deploy and integrate

We can help you configure, set up, and efficiently use your HP EVA Storage, as well as help migrate data, improve capacity utilization, and establish information management standards used across backup, replication, and archiving needs.

HP P6000 Enterprise Virtual Array Systems Installation and Start-up Service - HP installs, tests, and configures your tape hardware and software onsite. We deliver a tailored storage deployment, properly integrated into your environment.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA1-8183ENW.pdf

HP Enhanced Implementation Service for SANs - HP delivers complete design and implementation services for Fibre Channel, FCOE, FCIP, SAS, and iSCSI SAN connectivity components. This service includes three levels of support based on the type of environment, ranging from simple to more complex. A trained service specialist guides the implementation of the storage switches in the SAN environment according to HP quality standards.

HP Data Replication Solution Service for HP Business Copy and HP Continuous Access Software - Designed to help safeguard your critical business information, this service provides the analysis, design, implementation, and testing services necessary to deploy the functionality of real-time data mirroring or snapshots. Choose from three service levels, depending on your support needs and your environment.

HP Performance Analysis for HP Disk Arrays - We provide data collection, detailed I/O analysis, and enhancement recommendations for your HP Disk Arrays. Through this service, you will receive a report concerning the performance of an XP/ EVA Disk Array and a briefing session highlighting HP's findings and recommendations. This level of in-depth analysis drives improved performance, stability, and availability.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-1669ENW.pdf

HP Storage Virtual Volume Design and Implementation Service - An HP storage expert collaborates with your IT storage administrator to plan and design a customized virtual disk configuration that fits your environment in terms of performance, speed, accessibility and availability. Proper configuration is crucial to help increase the effectiveness of your storage investment.
http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA3-0774ENW.pdf

Operate and support

Choose the right support to maximize uptime, free up your resources, and achieve improved value-as you get the most out of the existing IT assets while accelerating time-to-revenue.

HP Proactive Care 24x7 - Hardware and software support services designed specifically for your technology with rapid access to Advanced Solution Center Specialists plus firmware and software management and best practice advice http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA3-8855ENW.pdf

HP Proactive Care Personalized Support - An option-if you have HP Proactive Care- to bring increased personalization of the Proactive Care support experience through the assignment of an Account Service

	Manager (ASM) who provides IT best practice advice to help address IT issues and projects. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA4-3446ENW.pdf **HP Support Plus 24** - Support for environments where proactive help from HP is not required, with 24x7 hardware and software support onsite that includes third-party support with a maximum four-hour onsite response. http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6638EN.pdf **HP Education Services** - Comprehensive training for new, as well as experienced, storage administrators designed to expand your skills and keep you up to speed with the latest storage and virtualization technology from HP Storage. http://education.hp.com/curr-storsan.htm
Optimized Care- delivers best performance and stability through deployment and proactive management practices	**Choose from three levels of operate and support care** **HP Proactive Care 24x7-Plus, 20 credits per year** **Additional options** - HP Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HP Personalized Support, and 10 additional HP Proactive Select credits per year
Standard Care-maintains high level of uptime, along with expert help to cut the cost and complexity of implementation and support	**HP Proactive Care 24x7-Plus, 10 credits per year** **Additional options** - HP Proactive Care Personalized Support (once per Proactive Care support new environment), an additional day of HP Personalized Support, and 10 additional HP Proactive Select credits per year
Basic Care - Minimum recommended support	**Support Plus 24- Plus, 10 credits per year** **Additional options** - 10 HP Proactive Select credits per year
Remote Support Automation	**HP Insight Remote Support** - Available at no additional cost to all warranty, HP Care Pack Service and service agreement customers, uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnosis and problem resolution. http://h20195.www2.hp.com/V2/GetPDF.aspx/4AA2-4676ENW.pdf http://h18004.www1.hp.com/products/servers/management/insight-remote-support/overview.html
For more information	www.hp.com/services/storage To learn more on HP Storage Services, please contact your HP sales representative or HP Authorized Channel Partner HP Care Pack Services are sold by HP and HP Authorized Service Partners: ● Services for customers purchasing from HP or an enterprise reseller are quoted using HP order configuration tools. ● Customers purchasing from a commercial reseller can find HP Care Pack Services at

Service and Support, HP Care Pack and Warranty Information

www.hp.com/go/lookuptool

Step 1 – Hardware

EVA P6350 Combo Kits

EVA P6350 Configurations start with the selection of one of the EVA P6300/P6350 Combo Kit choices below or by selecting one of the EVA P6300/P6350 Starter Kits below.

EVA P6350 Combo Kits come with a dual HSV300 (8GB cache) controller (FC only, or FC/1GbE, or FC/10GbE), one SFF or one LFF drive enclosure, P6000 Command View /ABM (Array Based Management software - installed on the controller Management Module) and a P6300 Unlimited P6000 Command View LTU (License To Use). Any of the available EVA P6000 SAS or mid-line SAS os SAS SSD disk drives, SFF drives with SFF enclosures and LFF drives with LFF enclosures, can be used with the combo kits.

Order combo kits factory integrated into a rack or field installed into a rack. Additional SFF or LFF drive enclosures, up to a maximum configuration of ten drive enclosures, and additional disk drives can be ordered with the combo kits. SFF and LFF enclosures and drives can be mixed in an EVA P6350.

EVA P6350 Dual FC Controller, SFF enclosure and Command View Combo Factory Integrated Kit	**HP EVA P6350 Dual FC Controller, SFF enclosure and Command View Combo Factory Integrated Kit** • One 2U EVA P6350 Dual FC Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with four 8Gb/s FC host ports. Also included are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v11.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option. **NOTE:** 8 SFF drives must be ordered with this factory integrated kit.	QK739B#0D1
EVA P6350 Dual FC Controller, SFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC Controller, SFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6350 Dual FC Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with four 8Gb/s FC host ports. Also included are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6300 Command View/ABM installed NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU)	QK740B

Configuration Information and Configuration Rules

	• XCS v10.x Firmware installed **NOTE:** This kit is only for Field Installation. It cannot be installed in the Factory.	
EVA P6350 Dual FC/1GbE Controller, SFF enclosure and Command View Combo Factory Integrated Kit	**HP EVA P6350 Dual FC/1GbE Controller, SFF enclosure and Command View Combo Factory Integrated Kit** • One 2U EVA P6350 Dual FC/1GbE (1Gb/s iSCSI) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately " P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option. **NOTE:** 8 SFF drives must be ordered with this factory integrated kit.	QK741B#0D1
EVA P6350 Dual FC/1GbE Controller, SFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC/1GbE Controller, SFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6300 Dual FC/1GbE (1Gb/s iSCSI) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field installation. It cannot be installed in the Factory.	QK742B
EVA P6350 Dual FC/10GbE Controller, SFF enclosure and Command View Combo Factory Integrated Kit	HP EVA P6350 Dual FC/10GbE Controller, SFF enclosure and Command View Combo Factory Integrated Kit • One 2U EVA P6350 Dual FC/10GbE (10Gb/s iSCSI/FCoE) Controller with a 533MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning	QK743B#0D1

	Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option. **NOTE:** 8 SFF drives must be ordered with this factory integrated kit.	
EVA P6350 Dual FC/10GbE Controller, SFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC/10GbE Controller, SFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6350 Dual FC/10GbE (10Gb/s iSCSI/FCoE) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 2GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6625 25-SFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • **P6000 Command View/ABM installed** NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field installation. It cannot be installed in the Factory.	QK744B
EVA P6350 Dual FC Controller, LFF enclosure and Command View Combo Factory Integrated Kit	**HP EVA P6350 Dual FC Controller, LFF enclosure and Command View Combo Factory Integrated Kit** • One 2U EVA P6350 Dual FC Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with four 8Gb/s FC host ports. Also included are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option. **NOTE:** 8 LFF drives must be ordered with this factory integrated kit.	QK745B#0D1
EVA P6350 Dual FC Controller, LFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC Controller, LFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6350 Dual FC Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with four 8Gb/s FC host ports. Also included are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6300 Command View/ABM installed	QK746B

	NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field Installation. It cannot be installed in the Factory.	
EVA P6350 Dual FC/1GbE Controller, LFF enclosure and Command View Combo Factory Integrated Kit	**HP EVA P6350 Dual FC/1GbE Controller, LFF enclosure and Command View Combo Factory Integrated Kit** • One 2U EVA P6350 Dual FC/1GbE (1Gb/s iSCSI) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option. **NOTE:** 8 LFF drives must be ordered with this factory integrated kit.	QK747B#0D1
EVA P6350 Dual FC/1GbE Controller, LFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC/1GbE Controller, LFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6350 Dual FC/1GbE (1Gb/s iSCSI) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6300 Command View/ABM installed NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field installation. It cannot be installed in the Factory.	QK748B
EVA P6350 Dual FC/10GbE Controller, LFF enclosure and Command View Combo Factory Integrated Kit	**HP EVA P6350 Dual FC/10GbE Controller, LFF enclosure and Command View Combo Factory Integrated Kit** • One 2U EVA P6350 Dual FC/10GbE (10Gb/s iSCSI/FCoE) Controller with two HSV340 array controller modules, eacj with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed	QK749B#0D1

NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately

- A P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU)
- XCS v10.x Firmware installed with

NOTE: This kit is only for Factory Integration. It requires the #0D1option.
NOTE: 8 LFF drives must be ordered with this factory integrated kit.

EVA P6350 Dual FC/10GbE Controller, LFF enclosure and Command View Combo Field Installed Kit	**HP EVA P6350 Dual FC/10GbE Controller, LFF enclosure and Command View Combo Field Installed Kit** • One 2U EVA P6350 Dual FC/10GbE (10Gb/s iSCSI/FCoE) Controller with a 677MHz ABM, with two HSV340 array controller modules, each with 4GB of cache and each with two 8Gb/s FC host ports. Also included are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables and XCS firmware license • One 2U M6612 12-LFF bay SAS HDD enclosure, with mounting hardware, power cords and SAS interconnect cables • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • A P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field installation. It cannot be installed in the Factory.	QK750B

EVA P6350 Starter Kits

EVA P6350 Starter Kits are complete solutions with an 8GB cache dual controller, one SFF enclosure, eight disk drives, P6000 Command View /ABM (Array Based Management software - installed on the controller Management Module) and a P6300 Unlimited Command View LTU. The starter kits can be ordered to be factory integrated into a rack or they can be ordered to be field installed into a rack. Additional SFF or LFF drive enclosures, up to a maximum configuration of ten drive enclosures, and additional disk drives can be ordered with the starter kits.

EVA P6350 Factory Integrated Starter Kit with (8) 450GB 10K SFF drives	**HP EVA P6350 (8) 450GB 10K SFF SAS Factory Integrated Starter Kit** • EVA P6350 Dual Controller array FC with 8GB of cache with a 677MHz ABM • M6625 25-SFF bay SAS HDD enclosure • Eight 450GB 10K RPM SFF SAS disk drives • P6000 Command/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed NOTE: This kit is only for Factory Integration. It requires the #0D1option.	AP889B#0D1
EVA P6350 Field Installed Starter Kit with (8) 450GB 10K SFF drives	**HP EVA P6350 (8) 450GB 10K SFF Field Installed Starter Kit** • EVA P6350 Dual Controller array FC with 8GB of cache with a 677MHz ABM • M6625 25-SFF bay SAS HDD enclosure • Eight 450GB 10K RPM SFF SAS disk drives	AP890B

- P6000 Command View/ABM installed
  NOTE: P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately
- P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU)
- XCS v10.x Firmware installed

NOTE: This kit is only for Field Installation. It cannot be installed in the Factory.

EVA P6350 Factory Integrated Starter Kit with (8) 900GB 10K SFF drives	**HP EVA P6350 (8) 900GB 10K SFF SAS Factory Integrated Starter Kit** • EVA P6350 Dual Controller array FC with 8GB of cache • M6625 25-SFF bay SAS HDD enclosure • Eight 900GB 10K RPM SFF SAS disk drives • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Factory Integration. It requires the #0D1option.	AP891B#0D1
EVA P6350 Field Installed Starter Kit with (8) 900GB 10K SFF drives	HP EVA P6350 (8) 900GB 10K SFF SAS Field Installed Starter Kit • EVA P6350 Dual Controller array FC with 8GB of cache with a 677MHz ABM • M6625 25-SFF bay SAS HDD enclosure • Eight 900GB 10K RPM SFF SAS disk drives • P6000 Command View/ABM installed **NOTE:** P6000 SmartStart software, containing P6000 Command View/SBM software, either on a CD or an e-copy, if needed, can be ordered separately • P6300 Unlimited Command View LTU (which also includes a Thin Provisioning Unlimited LTU and a Dynamic Capacity Manager Unlimited LTU) • XCS v10.x Firmware installed **NOTE:** This kit is only for Field Installation. It cannot be installed in the Factory.	AP892B

EVA P6550 Controllers

EVA P6550 configurations start with the selection of one of the EVA P6550 controller choices below.

NOTE: The #0D1 option for the following controllers must be ordered if the controllers are to be configured in cabinets in the factory. If the controllers are to be installed in the field, #0D1 is not included.

EVA P6550 Dual Controller Array, Fibre Channel	**HP EVA P6550 Dual Controller Fibre Channel Array** One 2U controller enclosure with a 677MHz ABM, with two HSV360 controller modules, each with 8GB of cache and each with four 8Gb/s FC host ports. Also included with each controller enclosure are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration.	QK717A QK717A#0D1
EVA P6550 Dual Controller Array,	**HP EVA P6550 Dual Controller Fibre Channel and 1GbE Array** One 2U Controller Enclosure with a 677MHz ABM, with two HSV360 controller modules,	QK718A QK718A#0D1

Configuration Information and Configuration Rules

Fibre Channel and 1GbE	each with 8GB of cache and each with two 8Gb/s FC host ports and four 1GbE (1Gb/s iSCSI) ports. Also included with each controller enclosure are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration.	
EVA P6550 Dual Controller Array, Fibre Channel and 10GbE (iSCSI/FCoE) Array	**HP EVA P6550 Dual Controller Fibre Channel and 1GbE Array** One 2U Controller Enclosure with a 677MHz ABM, with two HSV360 controller modules, each with 8GB of cache and each with two 8Gb/s FC host ports and two 10GbE (10Gb/s iSCSI/FCoE) ports. Also included with each controller enclosure are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration.	QK720A QK720A#0D1

Storage Centric EVA P6550 controllers

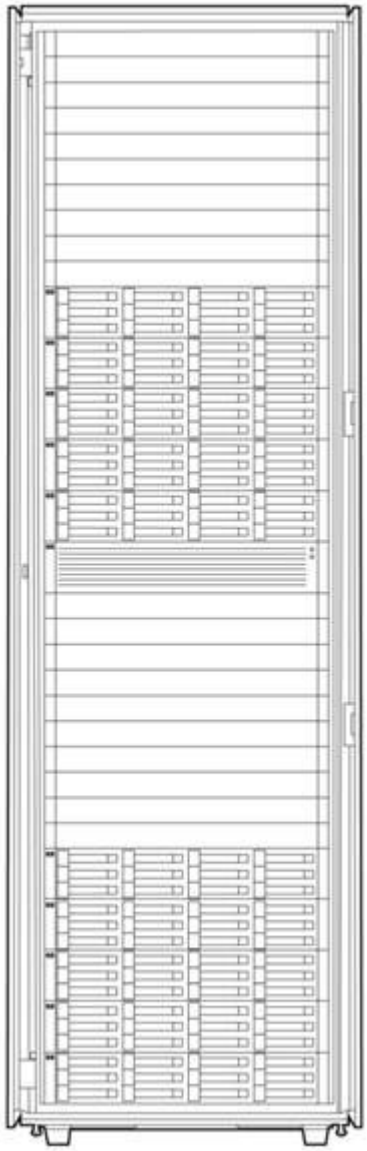
For the following Storage Centric Rack versions of the EVA P6550 controllers (for CTO (factory Configure-To-Order) only), the controllers will be located in a central rack location so that future expansion of the arrays, by adding drive enclosures, will be easy.

In the Storage Centric configurations, other non-EVA components are not permitted in CTO orders, but can be added in the field.

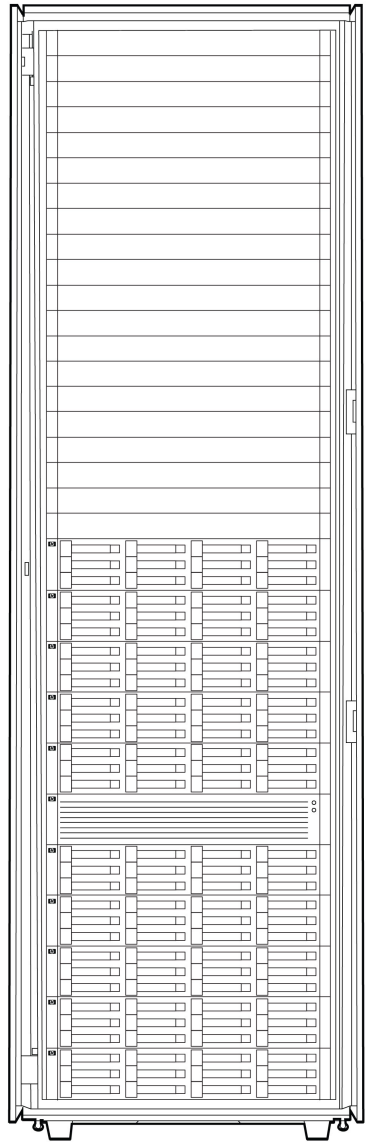
In Non-Storage Centric configurations, other non-EVA components can be added for CTO orders. They can also be added in the field.

The following drawings show example configurations for an EVA P6500/P6550 2C10D in Storage Centric and non-Storage Centric configurations.

Configuration Information and Configuration Rules



EVA P6550 2C10D
Storage Centric Configuration



EVA P6550 2C10D
Non-Storage Centric Configuration

NOTE: The following Storage Centric Controllers can only be ordered with #0D1 to be mounted in a cabinet in the factory.

EVA P6550 Dual Controller Array, Fibre Channel for Storage Centric Rack	**HP EVA P6500 Dual Controller Fibre Channel Array for Storage Centric Rack** One 2U controller enclosure with a 667MHz ABM, with two HSV360 controller modules, each with 8GB of cache and each with four 8Gb/s FC host ports. Also included with each controller enclosure are eight 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration. **NOTE:** The Storage Centric rack configuration, for CTO only, will result in the controller	QK721A#0D1

	assembly being placed in the middle of the rack cabinet to allow for easy expansion of the EVA P6550 in the future. The MPX200 Multi Function router, and X series servers used as EVA Management Servers can be added. Other non-EVA components are not permitted in CTO orders, but can be added in the field.	
EVA P6550 Dual Controller Array, Fibre Channel and 1GbE for Storage Centric Rack	**HP EVA P6550 Dual Controller Fibre Channel and 1GbE Array for Storage Centric Rack** One 2U Controller Enclosure with a 667MHz ABM, with two HSV360 controller modules, each with 8GB of cache and each with two 8Gb/s FC host ports and four 1GbE (1Gb/s iSCSI) ports. Also included with each controller enclosure are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration. **NOTE:** The Storage Centric rack configuration, for CTO only, will result in the controller assembly being placed in the middle of the rack cabinet to allow for easy expansion of the EVA P6550 in the future. The MPX200 Multi Function router, and X series servers used as EVA Management Servers can be added. Other non-EVA components are not permitted in CTO orders, but can be added in the field.	QK722A#0D1
EVA P6550 Dual Controller Array, Fibre Channel and 10GbE (iSCSI/FCoE) Array for Storage Centric Rack	**HP EVA P6550 Dual Controller Fibre Channel and 10GbE Array for Storage Centric Rack** One 2U Controller Enclosure with a 667MHz ABM, with two HSV360 controller modules, each with 8GB of cache and each with two 8Gb/s FC host ports and two 10GbE (10Gb/s iSCSI/FCoE) ports. Also included with each controller enclosure are four 8Gb/s SFPs, mounting hardware, power cords, SAS interconnect cables, and XCS firmware license. Order one unit for each EVA P6550 array configuration. **NOTE:** The Storage Centric rack configuration, for CTO only, will result in the controller assembly being placed in the middle of the rack cabinet to allow for easy expansion of the EVA P6550 in the future. The MPX200 Multi Function router, and X series servers used as EVA Management Servers can be added. Other non-EVA components are not permitted in CTO orders, but can be added in the field.	QK723A#0D1

Drive Enclosures

Drive enclosures can be ordered separately to be installed in the field or they can be factory configured in racks. At least one drive enclosure is required with each EVA P6300/P6350 Dual Controller and at least two drive enclosures are required with each EVA P6500/P6550 Dual Controller for factory configuration. Drive enclosures can be ordered for factory configuration without controllers for expansion beyond one cabinet. See below for more on expansion options.

NOTE: The following enclosures can only be ordered with #0D1 to be mounted in a cabinet in the factory.

M6612 3.5-inch SAS Drive Enclosure	**HP M6612 3.5-inch SAS Drive Enclosure** Select M6612 3.5-inch SAS drive enclosures to expand EVA P6300/P6350 configurations up to ten enclosures or to expand an EVA P6500/P6550 configuration up to twenty enclosures. SFF and LFF drive enclosures can be mixed in an EVA P6000. When mixed, up to twenty drive enclosures can be supported in an EVA P6500/P6550, but with a maximum combined drive count of 450 disk drives. **NOTE:** A minimum of 8 disk drives per high performance SAS type or Mid-line SAS drive	AJ832A

	or SAS SSD type are required per EVA P6300/P6500 when using those drive types.	
M6625 2.5-inch SAS Drive Enclosure	**HP M6625 2.5-inch SAS Drive Enclosure** Select M6625 2.5-inch SAS drive enclosures to expand EVA P6300/P6350 configurations up to ten enclosures or to expand an EVA P6500/P6550 configuration up to eighteen enclosures. 2.5-inch (SFF) and 3.5-inch (LFF) drive enclosures can be mixed in an EVA P6000. When mixed, up to twenty drive enclosures can be supported in an EVA P6500/P6550, but with a maximum combined drive count of 450 disk drives. **NOTE:** A minimum of 8 disk drives per high performance SAS type or mid-line SAS or SAS SSD drive type are required per EVA P6000 when using those drive types.	AJ840A

SAS Disk Drives

Drives are orderable at the time the array is purchased, or can be added in the future when additional capacity is required. Use these SKUs whenever ordering hard disk drives for the EVA P6000, either for factory integration or when adding additional capacity. Note that these SKUs apply ONLY to the EVA P6000 models and cannot be used with other prior generation EVA models.

HP SAS and mid-line SAS Drives	**NOTE: A minimum of eight (8) high performance SAS or mid-line SAS drives are required per EVA P6000.**	
LFF (3.5-inch) SAS Drives	HP M6612 450GB 6G SAS 15K 3.5-inch HDD	AP871A
	HP M6612 600GB 6G SAS 15K 3.5-inch HDD	AP872A
	HP M6612 2TB 6G SAS 7.2K 3.5-inch HDD	AW590A
	HP M6612 3TB 6G SAS 7.2K 3.5-inch HDD (requires XCS 11001000 or later controller firmware)	QR479A
	HP M6612 4TB 6G SAS 7.2K 3.5-inch HDD (requires XCS 11001000 or later controller firmware)	C8R31A
SFF (2.5-inch) SAS Drives	HP M6625 200GB 6G SAS 2.5-inch SSD	QK757A
	HP M6625 400GB 6G SAS 2.5-inch SSD	QK758A
	HP M6625 300GB 6G SAS 15K 2.5-inch HDD	QR477A
	HP M6625 300GB 6G SAS 10K 2.5-inch HDD	AP875A
	HP M6625 450GB 6G SAS 10K 2.5-inch HDD	AW612A
	HP M6625 600GB 6G SAS 10K 2.5-inch HDD	AW611A
	HP M6625 900GB 6G SAS 10K 2.5-inch HDD	QR478A
	HP M6625 1TB 6G SAS 7.2K 2.5-inch HDD	QK764A
	NOTE: #0D1 will appear after the drive part numbers to indicate factory integration where appropriate. #0D1 is used only when the drive enclosures and drives are being factory integrated in a rack.	
Disk drive (3.5-inch) Bulk Pack shipping	**Disk drive (3.5-inch) Bulk Pack Shipping** Customers ordering disk drives that are not factory configured have the option of getting the drives shipped in a bulk pack package in quantities of 10 drives per package.	519137-B21 (Americas only))

NOTE: All drives ordered with a disk drive bulk pack option must be the same drive type per bulk pack. One bulk pack must be ordered for each 10 drives. The drive part numbers must be entered directly after the bulk pack part number.
NOTE: Quantities of disk drives ordered that are not multiples of 10 will be shipped in individual drive shipping packages.
NOTE: The bulk pack shipping option is for the Americas region only.
NOTE: 0D1 will appear after the disk drive part number to indicate that the drives are linked to the bulk pack.

Disk drive (2.5-inch) Bulk Pack shipping	**Disk drive (2.5-inch) Bulk Pack Shipping** Customers ordering disk drives that are not factory configured have the option of getting the drives shipped in a bulk pack package in quantities of 10 drives per package. **NOTE:** All drives ordered with a disk drive bulk pack option must be the same drive type per bulk pack. One bulk pack must be ordered for each 10 drives. The drive part numbers must be entered directly after the bulk pack part number. **NOTE:** Quantities of disk drives ordered that are not multiples of 10 will be shipped in individual drive shipping packages. **NOTE:** The bulk pack shipping option is for the Americas region only. **NOTE:** 0D1 will appear after the disk drive part number to indicate that the drives are linked to the bulk pack.	590171-B21 (Americas only)

Controller Upgrade Kits

The following kits can be used to upgrade an EVA P6300 to an EVA P6350 or an EVA P6500 to an EVA P6550.

Prior to the installation of these kits, the EVA P6300/P6500 controller must be upgraded to XCS 11001000 or later and the P6000 Command View must be upgraded to v10.1 or later.

HP EVA P6300 to EVA P6350 Upgrade Kit	**HP EVA P6300 to EVA P6350 Upgrade Kit** The upgrade kit comes with: • 8GB of cache memory • Two new P6350 cache batteries • New 667 MHz ABM • New EVA P6350 controller bezel	QR556A
HP EVA P6500 to EVA P6550 Upgrade Kit	**P6550 Upgrade Kit** The upgrade kit comes with: • 16GB of cache memory • Two new P6550 cache batteries • New 667 MHz ABM • New EVA P6550 controller bezel	QR557A

Configuration Information and Configuration Rules

FC SFPs and FC Cables

EVA Loopback Connector	**HP EVA P6000 Loopback Connector** Contains one Loopback connector. The loopback connector is used when an EVA P6000 FC host port is not cabled to a switch or HBA (for direct connect). **NOTE:** All EVA FC host ports must be filled with either a cable or loopback connector.	AJ706A
SFPs	The EVA P6000 controllers come with 8Gb SFPs in each FC port. The following tables show the distances available with various cables and transceivers.	

8Gb Transceivers	**Distance-Maximum**	**OM2 Cable**	**OM3 Cable**	**PremierFlex OM4 Cable**
	8Gb performance	50 meters	150 meters	150 meters
	4Gb performance	150 meters	380 meters	380 meters
	2Gb performance	300 meters	500 meters	500 meters

4Gb Transceivers	**Distance-Maximum**	**OM2 Cable**	**OM3 Cable**	**PremierFlex OM4 Cable**
	8Gb performance	50 meters	150 meters	150 meters
	4Gb performance	150 meters	380 meters	380 meters
	2Gb performance	300 meters	500 meters	500 meters

PremierFlex OM4 FC cables (LC to LC)	1m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK732A
	2m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK733A
	5m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK734A
	15m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK735A
	30m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK736A
	50m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK737A

Ethernet Cables and Ethernet SFP

1GbE Ethernet cables	The following Ethernet cables can be used to connect between the EVA 1GbE (1Gb/s iSCSI) connectors and the customer's Ethernet network. Up to 8 are needed. No SFPs are needed.	
	CAT 5e cable, RJ45 to RJ45, M/M 4.3m (14ft)	C7536A
	CAT 5e cable, RJ45 to RJ45, M/M 7.6m (25ft)	C7537A
	CAT 5e cable, RJ45 to RJ45, M/M 15.2m (50ft)	C7542A
	NOTE: For more information on the Ethernet cables, see: http://h18004.www1.hp.com/products/servers/proliantstorage/bcs-rackandpower/data-cables/cat_5_cables.html?jumpid=reg_R1002_USEN (Up to 8 are needed.)	
10GbE Copper Ethernet cables	These copper FC cables can be used to connect 10GbE ports to the customer's iSCSI/FCoE network, if the connection is inside the EVA cabinet. No SFPs are required as SFPs are part of the copper cables. A 3m cable length is recommended for connections within the same cabinet. Longer cables are available for connection to adjacent cabinets. 4 cables are required for redundancy.	
	HP BLc SFP+ 0.5m 10GbE Copper Cable	487649-B21
	HP BLc SFP+ 1m 10GbE Copper Cable	487652-B21
	HP BLc SFP+ 3m 10GbE Copper Cable	487655-B21
	HP BLc SFP+ 5m 10GbE Copper Cable	537963-B21

	HP BLc SFP+ 7m 10GbE Copper Cable	487658-B21
	The following 10GbE Copper Cables are available. Some devices require specific cables to connect to them.	
	HP X242 switches:	
	HP X242 10-GbE SFP+ 1m Direct Attach Cable	J9281B
	HP X242 10-GbE SFP+ 3m Direct Attach Cable	J9283B
	HP X242 10-GbE SFP+ 7m Direct Attach Cable	J9285B
	HP C-series switches:	
	HP C-series 10-GbE SFP+ 3m Passive Direct Attach Cable SFP-H10GB-CU3M	AP784A
	HP C-series 10-GbE SFP+ 5m Passive Direct Attach Cable SFP-H10GB-CU5M	AP785A
	HP C-series 10-GbE SFP+ 7m Passive Direct Attach Cable	QK701A
	HP C-series 10-GbE SFP+ 10m Passive Direct Attach Cable	QK702A
	HP B-series switches:	
	B-series 10-GbE SFP+ 1m Active Direct Attach Cable XBR-TWX-0101	AP818A
	B-series 10-GbE SFP+ 3m Active Direct Attach Cable XBR-TWX-0301	AP819A
	B-series 10-GbE SFP+ 5m Active Direct Attach Cable XBR-TWX-0501	AP820A
	HP X240 switches:	
	HP X240 10-GbE SFP+ 0.65m Direct Attach Cable	JD095B
	HP X240 10-GbE SFP+ 1.2m Direct Attach Cable	JD096B
	HP X240 10-GbE SFP+ 3m Direct Attach Cable	JD097B
PremierFlex OM4 FC cables (optional) (LC to LC)	The following FC cables can be used to connect the 10GbE ports to the customer's iSCSI/FCoE network. They are to be used when the connection is outside of the EVA cabinet. Optical Ethernet SFPs (see below) are required.	
	1m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK732A
	2m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK733A
	5m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK734A
	15m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK735A
	30m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK736A
	50m PremierFlex OM4 LC/LC Multi-Mode Optical Cable	QK737A
Premierflex OM3+ FC cables	**NOTE:** Premierflex OM3+ cables are still supported, but will no longer be sold.	
FC cable - OM3 LC-LC type cables	.5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ833A
	1 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ834A
	2 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ835A
	5 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ836A
	15 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ837A
	30 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ838A

	50 m LC-LC Multi-Mode OM3 Fibre Channel Cable	AJ839A
Optical 10GbE Ethernet SFP	10GbE Short Range Ethernet 10GBase-SR	455883-B21

Choose a Rack and Rack Options

Factory Integration

Start your order by choosing a rack to house your EVA P6000 based on an HP Rack.

Primary Configuration Rules

The EVA P6000 will be configured into a 42U HP Rack with the appropriate PDU. If other products such as servers or back-up products are included in the cab, a different PDU will be added (if required) or can be chosen from a list of appropriate offerings shown in the configuration tool. An HP Rack must be purchased for factory configuration. Additional EVA P6000 controller enclosures and drive enclosures may be ordered for multiple subsystem integration at the factory.

The 5642 (42U) Rack Cabinet System is supported for field installation. This rack may be purchased along with EVA component pieces for assembly in the field. The HP 5642 rack system is an entry level rack with sufficient features for easy access and ease of use.

When calculating available U-space, assume that no space will be placed between the mounted components. For redundancy, order PDUs in quantities of two. Refer to the Configuration and User Guide in the Information Library at the Rack Solutions webpage.

HP Racks

NOTE: The number of EVA P6000 components that will fit in a rack varies and is determined by the interior U-space of the cab.

For more information on the HP rack offerings, please see the following URL:
http://h18004.www1.hp.com/products/servers/platforms/rackandpower.html

For more information on PDUs, see:
http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/pdu.html

HP PDU Pivot Kit (0U PDU option)	Used to reclaim 2U of space in a Rack with EVA P6000 configurations. This kit allows the PDUs to be placed in the back of the rack without requiring any rack U space. **NOTE:** The use of the PDU Pivot Kit is strongly recommended and is the default option when orders are configured, as it will save 2U of valuable rack space. **NOTE:** 0D1 will appear after this part number to indicate factory integration where appropriate.	AG730A

Non-HP rack and power requirements

For detailed information on determining compatibility of a non-HP rack, please review the information included in the EVA P6000 User Guide which can be found at:
http://www.hp.com/go/P6000

Expansion Options

The EVA P6000 Dual Controller enclosure can be added on-site into existing EVA configurations (or qualified rack systems), using the EVA P6300/P6350 Combo kit, P6300/P6350 Starter kit, or P6500/P6550 dual controller SKUs listed earlier.

Additional SAS drive enclosures, either SFF or LFF, listed earlier, can be ordered to expand an EVA P6000 configuration.

Additional hard disk drives can be ordered using the drive SKUs listed earlier.

SAS expansion cable kit	**6 meter SAS expansion cable kit** If an EVA P6000 needs to be expanded into an adjacent cabinet, one 6 meter SAS expansion cable kit is needed for an EVA P6300/P6350; two 6 meter SAS expansion cable kits are needed for an EVA P6500/P6550. Each 6 meter SAS expansion cable kit contains four 6 meter SAS cables.	AP879A
	2 meter SAS expansion cable kit If an EVA P6000 needs to be expanded within the same cabinet, but the drive enclosure to be added needs to be some distance away from the nearest existing drive enclosure within the same cabinet, one 2 meter SAS expansion cable kit is needed. Each 2 meter SAS expansion cable kit contains two 2 meter SAS cables.	AW566A

NOTE: The SAS cables that come with each drive enclosure are 0.7m (27.3 in) long.

Optional Hardware Accessories

Non-HP Rack installation For racks other than those specifically stated for use with EVA P6000, please visit the EVA P6000 web page for details on rack and power specifications: http://www.hp.com/go/P6000, select EVA P6000 and under Support select Manuals, then select EVA P6000 User Manual.

Due to the wide variety of non-HP racks available, HP does not guarantee that the EVA P6000 components will mount or operate properly in non-HP racks.

Step 2 - EVA Firmware and Software

EVA P6000 XCS Controller Firmware HP EVA P6000 XCS 11001000 controller media download is available from HP.com. These downloads are available as archival media for EVA P6000 from the following link:
http://h10010.www1.hp.com/wwpc/us/en/sm/WF04a/12169-304616-304648-304648-304648.html

P6000 Command View (REQUIRED)

P6000 Command View- Setup and Management Software

A P6000 Command View Unlimited Capacity LTU license is required for the EVA P6000.

Thin Provisioning is now a feature of P6000 Command View, beginning with v9.4 (or later version).

Two versions of P6000 Command View are available and come packaged together in the media kit:

- HP P6000 Command View /ABM (Array Based Management) v10.1 (or later version), is required with the EVA P6350 and EVA P6650 and with XCS 11001000 on any of the EVA P6000 models.
- HP P6000 Command View /SBM (Server Based Management) v10.0 or v10.1 (or later version) is available to run on Windows Management Servers. It is required if Continuous Access EVA is going to be used with the EVA.
- HP P6000 Command View /ABM (Array Based Management) v10.0 or v10.1 (or later version), also comes installed on the management module of EVA P6000 controllers.
- HP P6000 Command View /ABM (Array Based Management) v10.1 (or later version), also comes installed on the management module of EVA P6000 controllers.

For more information on P6000 Command View, see:

http://h18006.www1.hp.com/products/storage/software/cmdvieweva/index.html.

P6000 SmartStart

SmartStart for EVA - Installation Software

Install and configure EVA P6000 using HP P6000 SmartStart configuration utility, which runs on Windows Server systems. This software installs necessary drivers on Windows Server 2003 and 2008 application servers and P6000 Command View / SBM v10.0 or v10.1 (or later version) on a Windows Server 2003 management server, as well as provisions the storage. During installation, click to accept the terms of the HP P6000 SmartStart* configuration utility End User License Agreement (EULA). No separately orderable LTU is required for HP P6000 SmartStart.

*For more information and ordering information on SmartStart, see:
http://h18000.www1.hp.com/products/storageworks/evasmartstart/relatedinfo.html?jumpid=reg_R1002_USEN

Replication Solutions Manager

Replication Solutions Manager - Local Replication Management Software

Replication Solutions Manager Software integrates with HP P6000 Business Copy Software and HP P6000 Continuous Access software for local and remote replication.

See the product URL for ordering information and part numbers:
http://h18006.www1.hp.com/products/storage/software/repsolmgr/index.html

P6000 Business Copy

P6000 Business Copy - Local Replication Software

HP P6000 Business Copy is a local replication software product for the EVA family providing Snapshot and clone set-up and management. Business Copy is sold by utilized capacity. For more information, see the Business Copy description earlier in this document.

See the product URL for ordering information and part numbers:
http://h18006.www1.hp.com/products/storage/software/bizcopyeva/index.html.

P6000 Continuous Access

P6000 Continuous Access - Remote Replication Software

HP P6000 Continuous Access is a controller-based application that performs real-time replication between HP enterprise virtual arrays. For more information, see Continuous Access description earlier in this document.

Please see the product URL for ordering information and part numbers:
http://h18006.www1.hp.com/products/storage/software/conaccesseva/index.html.

P6000 Dynamic Capacity Management

P6000 Dynamic Capacity Management Software - Capacity Management

HP P6000 Dynamic Capacity Management Software is a comprehensive software solution that automates storage provisioning and improves capacity utilization on the HP Enterprise Virtual Array (EVA) family. For more information, see the DCM description earlier in this document.

See the product URL for ordering information and part numbers:
http://h18000.www1.hp.com/products/quickspecs/12815_na/12815_na.html

Multiple Path High Availability Software

Multiple Path High Availability Software

Industry popular multiple path software is supported on EVA P6000s. This software is used to manage multiple paths between hosts and storage systems. It enables high availability through path management and I/O load balancing. Multiple path support is available for the following Operating Systems:

- HP-UX - HP-UX 11.31 has OS native multi-path, pvlinks native in HP-UX and Veritas DMP
- Windows - Full featured MPIO, v3.00.00 available from HP and Microsoft DSM from Microsoft
- Linux - QLogic Failover driver, available from QLogic /HP, Emulex MultiPulse available from Emulex/HP and Device Mapper v4.0 Enablement Kit from HP
- OpenVMS - native in OS
- AIX - MPIO native in OS
- Solaris - MPxIO native in OS, Veritas DMP available from Veritas
- NetWare - MPIO native in OS
- VMware - MPIO native in OS
- Apple Mac OS X - Included with ATTO HBA driver

For more information on other Multi-Path Options for HP Arrays, see:
http://h18006.www1.hp.com/products/storage/software/multipathoptions/index.html

Step 3 - EVA P6000 Connectivity Options

HP MPX200 Multifunction Router

The HP MPX200 Multifunction Router provides 1GbE and 10GbE iSCSI/FCoE connectivity to the EVA P6000 and enables modular multi-protocol SAN designs with increased scalability, stability, and ROI on storage infrastructure.

NOTE: The MPX200 Multifunction Router can be used with the Fibre Channel (only) EVA P6000. MPX200 can also be used with the iSCSI or iSCSI/FCoE versions of EVA P6000 array, but the iSCSI or iSCSI/FCoE host ports of EVA P6000 cannot also be used and must be disconnected.

For more information on the MPX200, see:
http://h18006.www1.hp.com/products/storageworks/mpx200mr/related.html?jumpid=reg_R1002_USEN

HP StoreEasy 3000 Gateway Storage

HP EVA P6000 combined with HP StoreEasy 3830 Gateway Storage or StoreEasy 3830 Gateway Storage Blade enables you to consolidate block and file storage onto a single, high-performance system - giving your business the flexibility to meet changing business needs on-demand.

HP StoreEasy 3830 Storage delivers efficient, secure, and highly available file services that help address your changing file-serving needs. It reduces your cost of ownership by simplifying management, increasing resource utilization, centralizing growth, and protecting data. HP StoreEasy 3830 Storage leverages the Server Manager capabilities in Microsoft Windows Storage Server 2012 to provide a simple and consistent experience for managing block and file storage for multiple workloads centrally.

HP StoreEasy 3830 Gateway Storage - B7E00A
HP StoreEasy 3830 Gateway Storage Blade - B7E01A

For more information visit: www.hp.com/go/StoreEasy

Step 4 - Other SAN Components and Software

SAN Components

The HP SAN integrates best-in-class storage networking components to deliver a complete connectivity platform for end-to-end network storage solutions. HP's fabric portfolio includes:

- HBAs,
- Directors,
- Switches,
- SAN extenders,
- NAS heads,
- iSCSI routers, and
- Fabric software.

HP SAN Infrastructure components deliver the network storage infrastructure for the Adaptive Enterprise.

For details on SAN infrastructure components and storage compatibility information, please visit: http://hp.com/go/san

Storage Resource Management Software (HP Standard Edition SRM Software)

HP Storage Essentials Standard Edition Storage Resource Management Software allows midsize businesses with limited IT staff to see the big picture thereby reducing SAN complexity. For more information, see the Storage Essentials product description earlier in this document: http://h18006.www1.hp.com/products/software/bto/srmgt/standard/index.html.

VMware Site Recovery Manager

VMware Site Recovery Manager (SRM) is designed to automate the recovery process and the remote replication of HP P6000 Continuous Access EVA with EVA P6000. The solution provides central management through VMware Virtual Center and enables more frequent testing. This solution also leverages your existing recovery site hardware to reduce operational cost of training. It is a solution that is fully integrated with HP servers, HP Storage and HP Services, providing mid-market customers with a total business continuity solution. For more information: www.hp.com/go/storage/vmware

Technical Specifications

	EVA P6000
Operating Temperature	50° to 95° F (10° to 35° C) - Reduce rating by 1° F for each 1000 ft altitude (1.8° C/1,000 m)
Shipping Temperature	-40° to 150° F (-40° to 66° C)
Humidity	10% to 90% non-condensing
Shipping Humidity	5% to 90% non-condensing
Operating Vibration	Sine 5-10 Hz 0.020" (0.5mm) double amplitude displacement, 10-500 Hz 0.1g, Random 10-500Hz at 0.15 Grms
Non-operating Vibration	Sine 10-150 Hz 0.3g, Random 10-500 Hz at 0.5 Grms
Shipping Vibration (packaged, on shock pallet)	Sine 5-150 Hz 0.5g, Random 0.86 Grms from 5-300 Hz, consisting of 5-100 Hz at 0.0059 g2/Hz and 100-300 Hz at 0.000049 g2/Hz
Operating Shock	5g half-sine 10mSec
Non-operating Shock	8g half-sine 10mSec
Shipping Shock (packaged, on shock pallet)	Horizontal: 10-deg incline at 1m/Sec, Vertical rotational edge 0.15m
Altitude	Up to 8,000 ft (2,400 m)
Air Quality	Not to exceed 500,000 particles per cubic foot of air at a size of 0.5 micron or larger

Power Data (North America/Europe/Japan) **maximum configuration**

NOTE: This power information is for a maximum configuration using the default 208 - 240 Volt single-phase PDUs. Other PDUs may use different plugs, voltages, etc. For more information on PDU support, please see the following URL: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/pdu.html

AC plug type (quantity 2)	North America - 3 wire NEMA No. L6-30P, 30 Amp (208 to 240V, 50-60Hz 30A) Europe - 3 wire, 2 pole IEC 309, 30 amp, (220 to 240V 50Hz 32A) **NOTE:** For other voltages, including 3-phase or 100-127V, see the PDU information for plug types at: http://h18004.www1.hp.com/products/servers/proliantstorage/power-protection/pdu.html.
Number of phases	Single (3-phase PDUs are also available)
Rated current	17A @ 200V-240V AC, 60Hz total, 4.25 A per power cord (2 PDUs) 34A @ 100-127V AC, 60/50Hz, 8.5A per power cord (2 PDUs) **NOTE:** The current ratings are for a full 42U cabinet with default PDUs. Different PDUs have different current/power ratings. The cabinet may be full of EVA and other equipment and actual current loads will vary by configurations. For the individual EVA P6300/P6350 or EVA P6500/P6550 current loads, see the table below.
Nominal Line Voltage	North America - 208V or 230V or 120V Europe - 230V Japan - 206V or 108V Latin America - 208V or 240V
Range Line Voltage	187V to 256V or 90V to 127V
Line Frequency	North America 60 Hz, Europe 50 Hz, Japan 50 or 60 Hz, Latin America 60K or 50Hz

EVA P6000 Array Power, Heat and Current

Technical Specifications

NOTE: At idle, system operates at approx. 15% less power than at typical.		EVA P6000 Dual Controllers		Drive Enclosures			Configurations			
		FC Only	FC and 10GbE	M6612 with 12 LFF drives	M6625 with 25 SFF drives	M6612 or M6625 with no drives	EVA P6300/ P6350 FC/ 10GbE 2C10D with 120 15K LFF drives	EVA P6300/ P6350 FC/ 10GbE 2C10D with 250 15K SFF drives	EVA P6500/ P6550 FC/ 10GbE 2C20D with 240 15K LFF drives	EVA P6500/ P6550 FC/10GbE 2C18D with 450 15K SFF drives
Typical	Total Unit Watts @ 230V	95.7	138.7	289.9	257.6	67.1	3037.4	2714.8	5936.1	4775.6
	Total BTU/hour @ 230V	326.5	472.9	988.40	878.5	228.8	10357.5	9257.4	20242.1	16285.0
	Input Current per plug, 230V	0.26	0.40	0.60	0.50	0.15	6.6	5.9	12.9	10.4
	Input Current per plug, 208V	0.29	0.44	0.66	0.55	0.17	7.3	9.1	14.3	11.5
	Input Current per plug, 115V	0.52	0.80	1.20	1.00	0.30	11.8/ 1.2[1]	11.7	11.8/ 10.8/ 4.8[2]	11.8/ 9.0[1]
	Input Current per plug, 100V	0.60	0.92	1.38	1.15	0.35	11.9/ 3.7[1]	11.2/ 1.4[1]	11.9/ 11.5/ 5.5[2]	11.2/ 11.5/ 1.2[2]
	In Rush Current (A) per plug, 208V	40	40	30	30	30	220	220	270	260
Failover Mode	Total Unit Watts @ 230V	91.4	136.5	279.5	247.4	54.6	2611.0	2931.1	5725.7	4590.7
	Total BTU/hour @ 230V	311.7	465.5	953.9	1143.8	186.2	8903.7	9995.0	19524.6	15654.2
	Input Current (A) max per plug, 230V	0.36	0.56	1.20	1.00	0.24	11.4	12.7	24.9	20.0
	Input Current (A) max per plug, 208V	0.40	0.62	1.33	1.11	0.26	12.6	14.0	27.5	22.1
	Input Current (A) max per plug, 115V	0.72	1.12	2.40	2.00	0.48	20.3/ 4.8[1,3]	21.1	21.1/ 20.0[1,3]	21.1/ 16.0[1,3]
	Input Current (A) max per plug, 100V	0.83	1.36	2.80	2.30	0.55	23.7/ 5.6[1,3]	22.1/ 2.3[1,3]	23.7/ 22.4/ 11.2[2,3]	22.1/ 20.7/ 2.0[2,3]

Technical Specifications

NOTE: PDUs must be selected to support the maximum load in Failover Mode.
[1]Using 4 100-127 v PDUs, rated at 24A each, to support the configuration. The first 2 PDUs can support controllers and part of the drive enclosures and the next 2 PDUs support the remainder of the enclosures.
[2]Using 6 100-127v PDUs, rated at 24A each, to support the configuration. The first 2 PDUs can support controllers and part of the drive enclosures, the next 2 PDUs support more enclosures, and the next 3 PDUs support the remainder of the enclosures.
[3]Assuming that power to half of each pair of PDUs was lost.

For more detailed information on a specific configuration and drives please utilize the EVA Power Calculator at:
http://www.hp.com/servers/powercalculator

EVA P6000 Product Dimensions, Weight and Clearance

Physical Dimensions	Height in/cm	Width in/cm	Depth in/cm	Max Weight lb/kg	Req. Front Clearance in/cm	Req. Rear Clearance in/cm
42U Graphite cab with dual PDUs and pivot kit	78.75/200.03	23.7/60.3	40.2 /102.2	302/137.3	30/76.2	30/76.2
EVA P6300/P6500 Dual Controller Array, FC	3.5/8.9	17.6/44.7	24.5/62.3	58.75/26.7	N/A	N/A
EVA P6350 Dual Controller Array, FC	3.5/8.9	17.6/44.7	24.5/62.3	60.00/27.2	N/A	N/A
EVA P6350 Dual Controller Array, FC/1GbE or FC/10GbE	3.5/8.9	17.6/44.7	24.5/62.3	61.50/27.9	N/A	N/A
EVA P6550 Dual Controller Array, FC	3.5/8.9	17.6/44.7	24.5/62.3	60.75/27.6	N/A	N/A
EVA P6550 Dual Controller Array, FC/1GbE or FC/10GbE	3.5/8.9	17.6/44.7	24.5/62.3	62.25/28.2	N/A	N/A
EVA P6300/P6500 Dual Controller Array, FC/1GbE or FC/10GbE	3.5/8.9	17.6/44.7	24.5/62.3	60.25/27.4	N/A	N/A
LFF SAS Drive with carrier*	4.29/10.9	1.065/2.7	7.36/18.7	2.0/0.9	N/A	N/A
SFF SAS Drive with carrier*	2.97/7.6	0.60/1.5	5.34/13.6	0.7/0.3	N/A	N/A
M6612 LFF Drive Enclosure - no drives	3.5/8.89	17.6/44.70	23.75/60.33	38/17.3	N/A	N/A
M6612 LFF Drive Enclosure with 12 drives*	3.5/8.89	17.6/44.70	23.75/60.33	62/28.2	N/A	N/A
M6625 SFF Drive enclosure - no drives	3.5/8.89	17.6/44.70	23.75/60.33	38/17.3	N/A	N/A
M6625 SFF Drive Enclosure with 25 drives*	3.5/8.89	17.6/44.70	23.75/60.33	55/25.0	N/A	N/A
EVA P6300 FC 2C10D with 120 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	981/445.9	30/76.2	30/76.2

Technical Specifications

EVA P6300 FC 2C10D with 250 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	916/416.4	30/76.2	30/76.2
EVA P6300 FC & iSCSI 2C10D with 120 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	983/446.8	30/76.2	30/76.2
EVA P6300 FC & iSCSI 2C10D with 250 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	918/417.3	30/76.2	30/76.2
EVA P6350 FC 2C10D with 120 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	982/446.4	30/76.2	30/76.2
EVA P6350 FC 2C10D with 250 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	911/416.9	30/76.2	30/76.2
EVA P6350 FC & iSCSI 2C10D with 120 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	984/447.3	30/76.2	30/76.2
EVA P6350 FC & iSCSI 2C10D with 250 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	919/417.8	30/76.2	30/76.2
EVA P6500 FC 2C20D with 240 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1601/727.7	30/76.2	30/76.2
EVA P6500 FC 2C18D with 450 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1360/618.2	30/76.2	30/76.2
EVA P6500 FC & iSCSI 2C20D with 240 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1601/727.7	30/76.2	30/76.2
EVA P6500 FC & iSCSI 2C18D with 450 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1362/619.1	30/76.2	30/76.2
EVA P6550 FC 2C20D with 240 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1603/728.5	30/76.2	30/76.2
EVA P6550 FC 2C18D with 450 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1362/619.0	30/76.2	30/76.2
EVA P6550 FC & iSCSI 2C20D with 240 LFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1603/728.5	30/76.2	30/76.2
EVA P6550 FC & iSCSI 2C18D with 450 SFF Drives*	78.75/200.03	23.7/60.3	40.2/102.2	1364/619.9	30/76.2	30/76.2

Technical Specifications

EVA P6300 Starter Kit with 8 300GB SFF drives	7.0/19.8	17.6/44.7	24.5/62.3	103/46.8	N/A	N/A
EVA P6300 Starter Kit with 8 600GB SFF drives	7.0/19.8	17.6/44.7	24.5/62.3	103/46.8	N/A	N/A
EVA P6350 Starter Kit with 8 450GB SFF drives	7.0/19.8	17.6/44.7	24.5/62.3	104/47.3	N/A	N/A
EVA P6350 Starter Kit with 8 900GB SFF drives	7.0/19.8	17.6/44.7	24.5/62.3	104/47.3	N/A	N/A
EVA P6300 to EVA P6350 Upgrade Kit	N/A	N/A	N/A	11.4/5.19	N/A	N/A
EVA P6500 to EVA P6550 Upgrade Kit	N/A	N/A	N/A	11.4/5.19	N/A	N/A

* Weight will vary somewhat by drive capacity and vendor. The weight shown is with the heaviest drive available.

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For hard drives, 1GB = 1 billion bytes (1000^3 or 10^9). Actual usable capacity can be less, based on Vraid types used.